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A Rubber Research Endowment

THE comforting assurance is given by President W. S. Farish of the American Petroleum Institute that the chances of America's natural store of motor fuel giving out are most unlikely. Even though the well supply should lessen, there still remains the vast reserve of oil shales and earthy combustibles from which motor fuel may be extracted. Yet, though conceding the improbability of early exhaustion of rock oil, the great petroleum interests deem it wise to reduce future hazard to a minimum by constantly devising means for eliminating waste, increasing the number and efficiency of by-products, and for not only producing oil from liquified coal but if possible from the synthesis of its carbon and hydrogen constituents. For research which may lead to that goal, and incidentally develop a series of derivatives comparable to and perhaps exceeding in importance the most precious products of coal tar, a fund of $100,000 annually has been guaranteed for at least five years.

If the leaders in the American petroleum industry deem such an endeavor a worth-while business venture, the leaders in the billion-dollar American rubber industry doubtless would, after careful consideration, come to a like conclusion concerning the advisability of conducting a cooperative campaign of intensive research covering their most essential material. The oil and rubber interests may even work much toward the same end. Such is the impression of President James F. Norris of the Massachusetts Institute of Technology, and who is president of the American Chemical Society. In a recent address he emphasized the fact that we are beginning to realize the value of cooperation in industry and that there is a real common ground on which great industrial units can meet and attack their problems.

"Suppose," says Mr. Norris, "a large industry—like that devoted to rubber—should establish a research laboratory to investigate problems fundamental to the industry and the study of which can not now be made by a single organization. It is easy to see that great good would come from such cooperation. Would not a cheap and reliable source of synthetic rubber be a boon to the industry as a whole?" In another address he says: "The cracking of petroleum will yield products from which can be formed hydrocarbons capable of polymerization to plastics related to rubber."

Another nationally known chemist, Charles H. Herty, of New York, is, like many others, similarly impressed. "I still feel," he says, "that it is to petroleum that we must turn for synthetic rubber. We know that the dienes, which form the natural starting point for the preparation of synthetic rubber, are produced in considerable quantities in the cracking of petroleum." The chemists can not see why, even if industralists be over confident or lacking in vision, the government should not be considerably concerned, as a matter of preparedness, about an abundant, home-controlled supply of rubber.

Of course, no one rubber manufacturing concern could be expected to even attempt such an extensive and expensive undertaking, but it should not be difficult to arrange a cooperative plan by which the burden would easily be borne by many beneficiaries. Nor is it improbable that generous federal aid could soon be enlisted for a project having such an important bearing on the safety of the nation as well as its industrial welfare. After all, it is all in the line of research in pure science in which the United States, as Secretary Hoover says, makes a distressingly poor showing as compared with the countries of Europe.

Stevenson Plan for Cotton

A BOUNTEOUS harvest may not always be a blessing. Following the bumper crop of last year, American cotton growers have this year raised even a bigger one, in fact, the biggest crop since 1914; yet despite such plentitude of riches they are far from being joyful. Big production without corresponding demand means, of course, low prices, and demand has lagged. Since the publication of the government's October estimate that the 1926 crop would reach 16,627,000 bales the price has dropped below 13 cents, whereas cost of production ranges between 16 and 18 cents a pound. As experts figure, this may mean a loss to cotton growers of as much as $800,000,000. Such a staggering total sorely perplexes the growers, and their leaders are urging the federal authorities and great banking interests to afford them immediate relief.

Meanwhile all sorts of plans are proposed to avert an impending debacle and to anticipate a condition analogous to that in which the rubber planters in the Far East found themselves some five years ago, when the market was glutted, surplus stocks were mounting fast, and prices showed loss instead of profit. One proposition is to put into effect a scheme to check sales and output akin to the Stevenson rubber restriction plan. It is contended that if such a scheme saved the rubber industry at a critical juncture it should be equally effective in averting a possible collapse of the American cotton-raising industry and in stabilizing the prices of the South's major crop, which last year yielded the farmers about $1,750,000,000, but which this year may bring them at least half a billion less.

It is hard to see how such restriction would even measurably relieve much less cure the ills of American cotton raisers. Even assuming that the industry could be organized on a nationwide scale, it would be very difficult to devise a plan of governmental control for cotton that would work as smoothly as the scheme for price regulation operating under wholly dissimilar conditions in the British rubber-producing colonies. True, the discouraged cotton planters might easily be induced to subscribe now to such a scheme, trusting that any change could not but inure to their advantage; but the chances are that in better times many would chafe under the restraint, and unless the government fetters were as strong as in war-time the recalcitrants would soon burst all barriers.

Nor does account seem to be taken of the powerful objection which would be made to the government attempting to fix the price of any agricultural product and thereby establishing a mischievous precedent. In fact, to bolster up the price of cotton, or any other commodity, a restriction scheme would scarcely function without an import duty, and this in turn would incite hostility among manufacturers and consumers. Rubber raisers are more favorably situated. Even nature helps in their plan of restriction. They can always count on half a dozen years' start on possible rivals, whereas even protected cotton raisers would have to contend with competitors producing annual crops. So, too, were a good price assured for cotton in the United States the cotton planters in Egypt, India, the Soudan, and elsewhere would have a fine incentive to double or treble their output; and so the last state of the American cotton raiser might be far worse than the first.

Effects of Restriction

THE rubber trade during the past twelve months has conclusively proved the truth of one of the principal axioms of economics, namely: that production cannot be restricted to the point of shortage without causing a sharp decline in consumption. Looking back over the period there can be no doubt that failure to hasten the release of government controlled restriction of exports from Malaya and Ceylon, which led to such an extreme denudation of stocks, caused, with the aid of wild speculation and fears of actual shortage, the rise in the price of rubber last December to 45.6 pence per pound, or 500 per cent above the average cost of production. The full effect of this scare upon consumption cannot yet be gaged, but it called forth a widespread economy campaign in America.—*The Statist*, London.

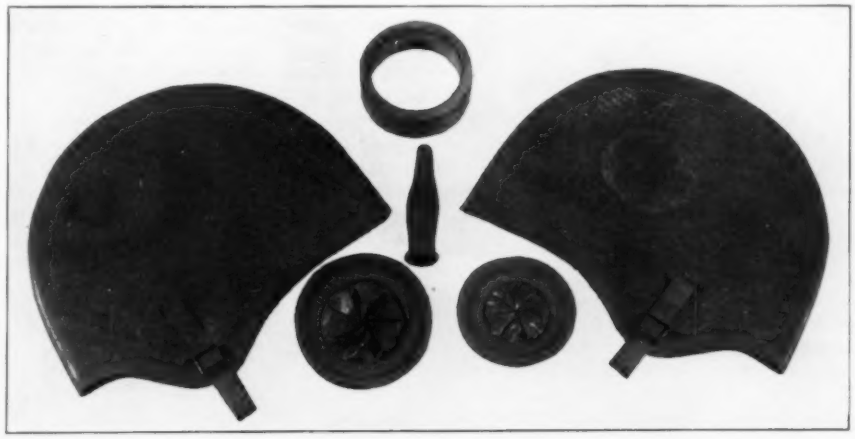
ONE OF THE LITTLE THINGS THAT COUNT IN OVERSEAS trade is the expression of precise prices in foreign terms. When an exporter of rubber goods, for instance, quotes only American dollars he may often miss a sale. The buyer abroad reckons best in his own currency, and when he is spared the trouble of puzzling out depreciation in coinage and differences in exchange, and is told plainly the local kind of money in which payment can be made, the chances of winning him as a permanent customer are decidedly improved.

A PUNGENT REMINDER OF OUR DEPENDENCE ON OTHER countries that is enough to start the tears of self-sufficient Americans is the fact that we have to seek elsewhere for not only rubber, tea, coffee, tin, hides, silk, and other important necessities, but that we must even go to Egypt for onions.

Electro-Deposition of Rubber

A New Process of Rubber Goods Manufacture—Latex Compounding—Continuous Production of Rubber Goods—Advantages and Applications

THE discovery that pure and compound rubber can be deposited electrophoretically for commercial purposes from latex or other dispersions was made independently by Paul Klein of Budapest, Hungary, and S. E. Sheppard and L. W. Eberlin of Rochester, New York. Dr. Klein, with his first collaborator, A. Szegvari, and a large corps of chemists and engineers, among whom should be mentioned F. Gabor, directed their efforts to the manufacture of rubber articles direct from latex. Sheppard and Eberlin sought to attach to metals rubber deposited from water dispersions. The development of these closely allied inventions has resulted in a distinctly new technology of rubber which already has assumed a practical aspect in the commercial production of inner tubes and many pure gum articles of light single piece construction, such as bathing caps, tobacco pouches, gloves, stationers' bands, etc. Success of the process abroad led recently to the formation by The B. F. Goodrich Co., The Eastman Kodak Co. and The British Anode Co., of American Anode, Inc., which is allied with the English, French and Hungarian Anode rubber companies.



Rubber Articles Produced by the Electro-Deposition Process

After a preliminary study for more than a year the laboratories of the Goodrich company are extending the commercial development and applications of the process. Dr. Szegvari, who collaborated with Dr. Klein for three years, has joined the Goodrich staff for this work. The industrial development thus assured will extend the practical applications of the process to the manufacture of many lines of rubber goods. The process is now applied in making pure gum articles of exceptional strength and toughness. These high tensile properties offer great opportunities to economize in the amount of rubber used to meet specific service requirements. Highly compounded stocks similar to those used for insulation purposes may also be produced by this process. That the process holds great promise for the rubber industry may be inferred from the conservative management backing and developing it, coupled with the probability that its use will be extended to the industry generally under equitable conditions and in accordance with its development. These facts are certain to arouse keen interest in the process, earlier references to which have been made in this and other publications.

The Process

Briefly, the process of electro-deposition of rubber is based upon the fact that particles of rubber in a water suspension have a negative charge and under the influence of an electric current travel to the positive pole or anode, there depositing as a coherent film of rubber. The ability to make this deposit homogeneous served as the point of departure for a special technology of rubber and made possible many ingenious applications new to an industry characterized by cumbersome mechanical methods. The essential steps in the application of the process include, (1) preparation and compounding of the rubber latex, (2) electro-depositing the rubber compounds, (3) drying the deposited article, (4) curing the article. It should be noted that the principal characteristics of the process are new in every step and feature from latex to finished article. In no part of the process are any of the old methods used.

Latex Compounding

Ammoniated latex at about 30 per cent concentration is taken as the base and compounded by the addition of desired proportions of selected ingredients. By one method the compounding ingredients are prepared by grinding with protective colloids in a colloidal mill, after which they are kept gently stirred without frothing, until they are mixed with the latex, as needed, by simple stirring at room temperature. A wide range of ingredients is available for latex compounding. The process may be described as colloidal compounding. It offers in fact a new method by which the mixing is effected without injury to the native structure of the rubber globule. This is a basic reason for the superiority of the products. The colloidal compounding of latex permits a more flexible choice of materials than the common milling method.

Apparatus and Process of Deposition

The mixed suspension, prepared as indicated, is placed in a storage tank. By means of a pump it is transferred to the depositing cell during the process of deposition. Uniform working conditions are maintained continuously and thus ensure regularity in the rate of deposition.

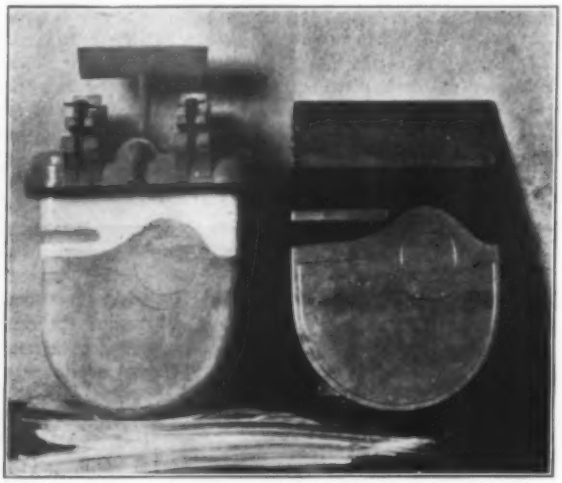
Anodic Molds

In the apparatus the rubber and compounding ingredients are deposited on the anodic mold. Groups of such anodic molds give shape to numerous articles at the same time. These molds are either of special unglazed porous ceramic ware or of a metallic surface, according to the quality and size of the product desired. In case a ceramic mold is used it is filled with a solution of an electrolyte, in which a metallic anode is placed. The gas liberated at the anode surface by the electrolyte during the passage of the current escapes within the mold without penetrating the mold walls,

thus leaving the rubber deposit solid on the outer surface of the ceramic form. In case a metal mold is used, the conditions are so chosen that no electro-chemical gas generation takes place at the anodic surface. In either case a non-porous rubber deposit is secured.

Continuous Production

An important feature of the electro-depositing system is the facility with which it can be adapted for a continuous production cycle. The cycle of the mold in the process consists of a series of distinct steps or stages: (1) electro-deposition, (2) drying, (3) curing, (4) stripping the article, (5) preparation of the mold for the electro-deposition on the next cycle. The same mold can be used again and again. Another condition for commercial operation of the process is that the mixture that serves for electro-depositing should be maintained constant in concentration, composition, conductivity, etc., during continued production month after month. Thus operated there is but slight waste of materials. The mechanical conditions include continuous removal of the liquid phase. It is possible by the use of a low-temperature, high-speed accelerator to greatly reduce the time and temperature of curing. By these provisions the depositing solution can be supplied at one end of the apparatus and cured articles removed at the other. The entire process is automatic and every step in it is repeated in each cycle of molding.



Ceramic and Metallic Anodic Molds

Quality of Electro-Deposited Rubber

Electro-deposited pure rubber or compounds acquire by the process a tensile strength notably greater than the same compositions milled and calendered. This is due in part to the fact that the rubber is not injured by heat and milling, and that in depositing the colloidal rubber and reinforcing materials they are compacted by the electrical energy applied. The strength is further enhanced by the low temperature drying and curing. Freshly deposited rubber has when dried a most remarkable toughness as compared with uncured rubber produced by the usual milling process. It has also little or no tackiness. Therefore the raw articles require no special care in handling and can be cured without the use of molds by ordinary curing methods. So-called pure gum stocks have remarkable resistance to tearing, and tensile as high as 5,000 pounds per square inch. They also have exceedingly good aging properties.

Advantages of the Process

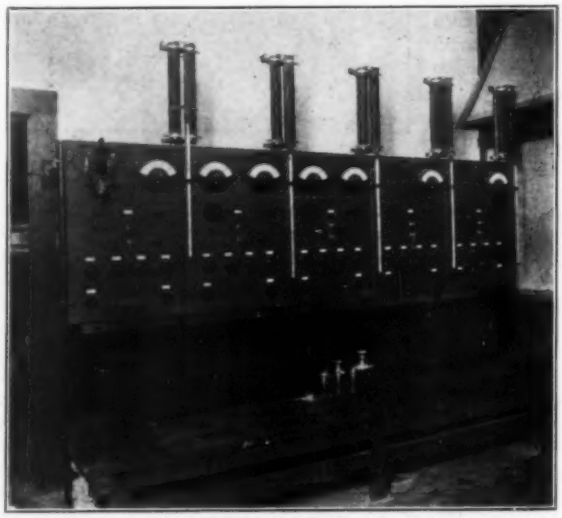
In comparison with the usual methods of rubber working, the new process has five important advantages: (1) It is a cold process throughout. Therefore the most sensitive accelerators can be incorporated without danger of scorching. (2) Super-quality stocks can be produced; for, since no grinding process is employed, the original structure and quality of the rubber remains unaltered. (3) The high physical qualities of the unimpaired rubber permit a saving of material through the use of lighter gages in making the articles. (4) The value of cleanly handling and precise control is an important factor. (5) The impregnation of textile goods is much more complete by this than by any other method, the rubber being deposited in intimate contact with and between the individual fibers.

Applications

Inner tubes offer the largest field for application of the new process because they are the chief pure gum product containing no fabric. Numerous other articles, such as water bottles, bathing caps, tobacco pouches, gloves, stationers' bands, insulated wire, etc., have been made. A very large field is presented in the manufacture of rubber footwear. This is as yet undeveloped, as also the many possibilities in mechanical rubber goods lines, proofing, etc.

The Rubber Factory of the Future

The rubber technologist working with the equipment and processes of the ordinary rubber manufacturing plant today is familiar with its demand for heavy machine equipment, its enormous power requirements and its numberless drawbacks involving expense for construction of goods, waste and the loss due to detached steps in the process of production. The introduction of the electro-depositing methods of rubber working threatens to displace the present equipment and practice. Rubber latex will take the place of csolid crude rubber. If this process is generally adopted, dirty compounding and mixing departments, and ponderously equipped, hot, dusty and noisy milling rooms will be eliminated. Both the preparatory processes and the production of the goods will be carried out in light and clean apparatus, affording continuous and largely automatic production of goods and the handling of compounded material through pipe lines without waste. The system is thoroughly hygienic, and with its adoption will disappear many serious accidents.



Electrical Switchboard with Adjustable Resistance

In so far as its applications are successful in practical work, so far will the electro-depositing method transform rubber factories into quieter and more comfortable places for workers and more profitable institutions for owners.

Rubber Linings for Acid Leaching Tanks[1]

Harlan A. Depew and A. R. Lewis[2]

RUBBER technologists generally have the impression that acid soluble pigments, such as zinc oxide and whiting, are unsuitable for use in rubber compounds exposed to the corrosive action of acids. The authors were inclined to this point of view until our acid department sent us a glove that they characterized as one of the best they had ever purchased. This glove analyzed 35 per cent of zinc oxide and 15 of whiting. We realized that inorganic acids, such as sulphuric, do not easily penetrate rubber and that reactive pigment particles might neutralize the small amount of acid that reaches them; thereby protecting the surrounding rubber. A few qualitative acid resistance tests with zinc oxide stocks afforded us sufficient confidence to line with compounds of this sort a lithopone leaching tank, in which zinc ore is leached with 20 to 25 degrees Beaumé sulphuric acid at 60 to 70 degrees C., with a compound containing 55 per cent of Kadox, the fine particle sized zinc oxide.

This tank measures 18 feet in diameter and 8 feet high, an outside view being shown in the illustration at *A*, and a view of the lining after four months' service is shown at *B*, in which the unions and the vertical lines of permanent set against the boards of the tank are visible. At present the lining has been in service over a year and shows no failure due to the action of the acid. There is a layer less than 0.01 of an inch thick of leached and deteriorated rubber on the surface. The lining has lost much of its initial strength and elasticity due to long exposure at an elevated temperature, but will not fail for months to come. Since its ultimate failure will be due not to the acid but to the long period of accelerated aging, it is interesting to speculate on the value of antioxidants in this lining. Also to find whether they would be destroyed by the acid or if they would protect the linings.

TABLE 1

COMPOUNDS INVESTIGATED

	Pure Gum	XX Red Zinc Oxide	Kadox	Whiting	Clay	Carbon Black
Pale crêpe	920	920	920	920	920	920
Sulphur	46	46	37	55	55	46
Hexa	6	4	...	4	4	7
Formaldehyde-paratoluidine[a]	...	...	9	...	...	...
XX Red zinc oxide	28	1,260	...	28	28	28
Kadox	...	...	1,035	...	...	...
Whiting	...	...	...	583	...	...
Clay	...	...	...	...	583	...
Carbon black	...	...	...	...	...	312
Stearic acid	...	...	...	...	...	2
Vascline	10	10	9	18	18	18

[a] This accelerator was chosen because of its beneficial influence on the working qualities of the particular stock.

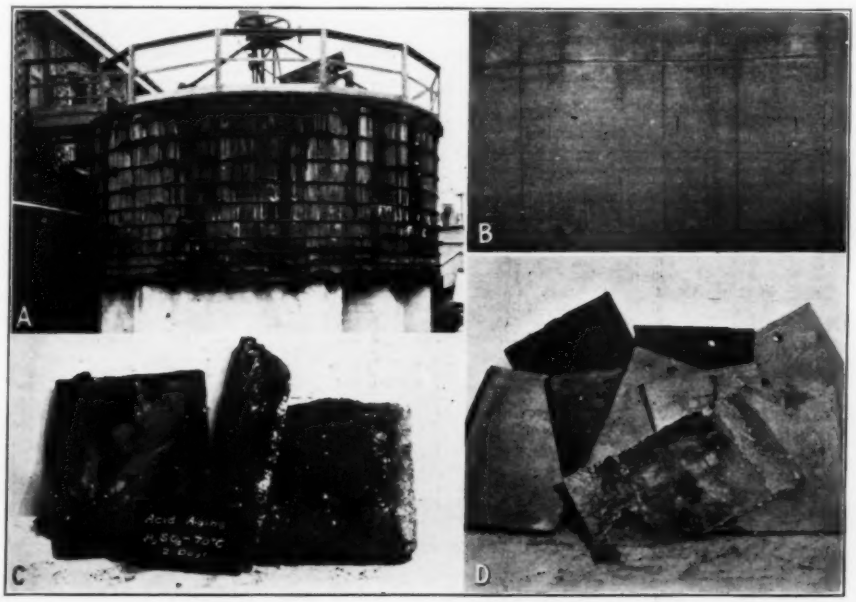
TABLE 2

INITIAL PHYSICAL PROPERTIES OF COMPOUNDS

Compound	Time of Cure Mins. at 40 Lbs.	Tensile Strength Lbs. per Sq. In.	% Elong.	Load at 300%	Load at 450%
Pure gum	60	2,620	740	235	435
	120	3,110	745	250	500
XX red	60	2,880	660	695	1,525
Zinc oxide	120	3,125	662	940	1,760
Kadox	60	3,675	760	530	1,250
	120	3,635	665	790	1,690
Whiting	45	2,320	635	630	1,225
	90	2,360	605	685	1,420
Clay	45	2,685	465	1,395	2,640
	90	2,965	455	1,875	2,820
Carbon black	60	2,850	560	1,170	2,415
	120	2,610	495	960	2,110

In order to obtain quantitative information on the acid resistance of various compounds, listed in Table 1, a number of test slabs were immersed in various liquids at room temperature and at 70 degrees C.

The type of compounds tested were: "Pure" gum, XX red zinc oxide, Kadox, whiting, clay and carbon black. These are shown in Table 1, and their initial physical properties in Table 2.



A—Exterior View of Rubber Lined Leaching Tank.

B—Rubber Lining on Inner Wall of Tank.

C—Rubber Lining Aged by Concentrated Sulphuric Acid.

D—Rubber Lining Aged by 17 Per Cent Nitric Acid.

[1] Presented before the Division of Rubber Chemistry at the 72nd Meeting of the American Chemical Society, Philadelphia, Pennsylvania, September 5 to 11, 1926.

[2] The New Jersey Zinc Co., Palmerton, Pennsylvania.

TABLE 3

COMPOUNDS TESTED AS TANK LININGS

Ingredients	High Cost	Low Cost	Remarks
Crude rubber	920	460	
Whole auto tire reclaim	....	742	50% of rubber hydrocarbon replaced by reclaim hydrocarbon.
Sulphur	18	37	
Hexa	9	....	
Thiuram disulphide	1	1	
Ethylidine aniline	....	4½	
Kadox (22½ vols. of pigment to 100 vols. of rubber)	1,260	560	10 vols. of pigment to 100 vols. of rubber hydrocarbon.
Stearic acid	2¼	....	
Vaseline	18½	....	
Paraffin	....	2¼	
M. R.	....	230	

The accelerator content must be kept at a minimum to prevent scorching on the mills and cold curing before the stock is applied on the tank.

Low temperature curing zinc and reclaim stocks were also tested. These are given in Table 3.

The test mediums used were, air; water; 30 per cent sodium hydroxide; 22½, 50, 75 and 95 per cent sulphuric acid; 17 and 35 per cent nitric acid; 18 and 36 per cent hydrochloric acid.

Sample slabs were removed from time to time and tested for tensile properties based on the original thickness of the slabs.

Laboratory Tests

The results from over 1,000 tests are erratic, but Table 4 shows the following conclusions:

1. Rubber compounds resist very satisfactorily sulphuric acid to above a 50 per cent concentration. Concentrated sulphuric acid inflated and charred the compounds, as shown in the illustration at *C*.

2. Rubber compounds resist concentrated hydrochloric acid fairly well. The gaseous acid penetrates the rubber and causes it to swell somewhat. Considerable amounts of zinc oxide leach out in time but the pigment nevertheless proves of definite value in the construction, vulcanizing, and life of the lining.

3. The resistance to nitric acid is less satisfactory. The rubber slabs showed appreciable corrosion with 17 per cent of nitric acid, as seen at *D* in the illustration, and some slabs were completely decomposed in a year.

4. There is little choice among the pigments in regard to their general resistance to corrosive materials, although the Kadox stock was the best.

5. After eight weeks at 70 degrees C., the compounds in sodium hydroxide solution showed no greater deterioration than in water. After 52 weeks at room temperature, the compounds containing zinc oxide and whiting were definitely inferior. According to our theory a basic zinc sulphate would be the ideal pigment for a lining to resist corrosive alkaline materials.

6. The reclaim compound tests are incomplete and not reported but they show that this material can be used in acid linings. The low temperature curing reclaim compound is definitely inferior to the zinc compound especially when exposed to nitric or hydrochloric acids.

7. In qualitative tests using hot stearic acid, which is soluble in the rubber, zinc oxide is easily leached out and the compound swells badly. The other compounds also swell and are unsatisfactory.

8. Much of the deterioration of these compounds is due to aging and not to acid action as shown by comparing the deterioration in water with the deterioration in the various liquids.

9. Two cures of each compound were chosen and samples exposed to acid attack. For tabulation only the cure that gave the best result was taken. When exposed to acid at 70 degrees C., there was a tendency for the soft cure to give the better result. When exposed at room temperature, the tendency was for the higher cure to test best.

Practical Considerations

In choosing the most desirable compound for lining an acid tank, other factors besides acid resistance must be considered.

1. The compound must cure at low temperatures. Zinc oxide is especially desirable as an activator in this connection.

TABLE 4

	After Eight Weeks at 70 Degrees C.						After Fifty-two Weeks at Room Temperature					
	Gum	XX Red Zinc Oxide	Kadox	Whiting	Clay	Carbon Black	Gum	XX Red Zinc Oxide	Kadox	Whiting	Clay	Carbon Black
				In Air						In Air		
Tensile strength	145	1,320*	1,885*	890	1,025	635	2,470	3,270*	3,525	2,500*	3,075*	3,820*
% Elongation	300	450	505	510	375	220	245	660	755	615	550	605
Load at 300% elongation	145	795	890	395	760	....	220	740	375	545	1,260	1,355
				In Water						In Water		
Tensile strength	1,710	1,925*	2,775	1,865	2,035	1,510	2,380	2,575*	2,865*	2,170	2,420*	3,135*
% Elongation	690	560	675	600	495	335	790	600	620	620	585	565
Load at 300% elongation	205	1,295	405	430	805	1,130	175	705	695	320	680	1,480
				In 30% NaOH						In 30% NaOH		
Tensile strength	2,400	1,315	2,910*	2,075	2,535	2,155	1,925	395*	595*	435*	1,835*	2,795
% Elongation	725	670	625	600	500	455	690	245	145	285	595	535
Load at 300% elongation	210	210	635	490	990	1,100	375	....	....	....	820	1,305
				In 22½% H_2SO_4						In 22½% H_2SO_4		
Tensile strength	2,095	1,915*	2,970	2,090	2,810*	1,358	2,740	2,265*	2,900*	2,540	2,845	3,025*
% Elongation	750	495	685	600	490	330	760	565	670	640	470	560
Load at 300% elongation	190	840	595	565	1,265	1,155	220	530	655	455	1,255	1,460
				In 50% H_2SO_4						In 50% H_2SO_4		
Tensile strength	2,035	600	2,745	2,135	2,505*	1,090	2,645	2,800*	3,625	2,555*	2,685	3,070
% Elongation	755	510	640	615	445	285	750	595	730	605	470	630
Load at 300% elongation	225	295	545	460	1,515	....	235	835	430	585	1,195	1,160
				In 75% H_2SO_4						In 75% H_2SO_4		
Tensile strength	1,220	615	2,860*	1,835	2,790*	1,220	Samples Destroyed in the Acid					
% Elongation	660	260	610	575	465	325						
Load at 300% elongation	210	....	725	490	1,560	1,105						
				In 17% HNO_3						In 17% HNO_3		
Tensile strength	1,030	1,550	1,825	995	1,685*	645	Samples Destroyed in the Acid					
% Elongation	700	485	490	635	500	250						
Load at 300% elongation	260	840	765	205	775	....						
				In 35% HNO_3 (Conc.)						In 35% HNO_3 (Conc.)		
Tensile strength	760	1,390*	1,760	560	1,335*	760	Samples Destroyed in the Acid					
% Elongation	655	445	475	615	545	290						
Load at 300% elongation	175	820	860	125	655	....						
				In 18% HCl						In 18% HCl		
Tensile strength	1,675	1,375	1,860	965*	1,410*	1,690	2,210	1,675*	2,205*	1,305	2,510*	2,945*
% Elongation	730	550	595	560	485	360	800	450	575	620	555	480
Load at 300% elongation	180	420	425	245	610	1,185	215	1,315	840	280	895	1,360
				In 36% HCl (Conc.)						In 36% HCl (Conc.)		
Tensile strength	1,430	925	2,025	585	1,285*	2,000	2,800	2,085*	3,495*	2,500	3,195*	3,965*
% Elongation	700	620	630	610	505	410	785	615	700	675	510	535
Load at 300% elongation	175	210	430	120	610	1,260	240	530	660	450	1,550	1,785

*The high cure.

2. In order to prevent leaks, the unions of plied stock must be tight. The tacky quality of zinc oxide stocks makes it indispensable for this purpose.

3. For low cost work, there are two methods: the use of cheap pigments and the use of reclaim as a substitute for rubber. The use of reclaim is preferred for cheapening the stocks to the point where it causes trouble due to poor unions, because a greater volume of rubber can be replaced by reclaim than by cheap pigments and make a correspondingly cheaper stock. This depends, of course, in general on the price of crude rubber. The two stocks in Table 3 now used in the leaching tanks are representative of good practice.

4. For special service, strength and resistance to abrasion may be important factors.

Method of Lining the Tank

A well accepted method of applying the lining was followed. Eight to 14 ounce fabric was frictioned and skimmed both sides. The inside of the tank was cemented and the coated fabric tacked over it with the joints lapped. Calendered strips of unvulcanized rubber lining stock about 1/16 inch thick were rolled down where the laps occurred. In order to protect the tank bottom lining against damage by workmen when shoveling out residues, a layer of bricks was placed over the lining with the outer row on end so that the sides were slightly protected. The lining was vulcanized by filling the tank with water and bubbling in steam until the temperature reached 70 to 80 degrees C. It was kept at this temperature overnight.

The lining was broken by the workmen during one of the clean-outs, and it was patched thus: The surface was cleaned, roughened, cemented and a thin calendered sheet of compound was rolled down over the injury. There was no trouble using the high grade compound for this purpose, but the low cost compound did not give sufficiently reliable unions. However, the low cost compound can be patched with the high grade compound.

Lead and Rubber Lining Compared

The cost of lining an 18 by 24 foot zinc leaching tank is as follows: Lead at 10 cents per pound, tank repaired 13 times, $1,150. Credit-recovery value of lead, $700. Net cost, $450. Rubber composition at 23.6 cents per pound, calendering, fabric and labor, $439. Rubber composition at 16.4 cents per pound, calendering, fabric and labor, $317.

These cost figures show that there is little difference in initial cost between a rubber and a lead lining when the scrap value of the lead is considered. The life of a lead lining is about eighteen months. That of the rubber lining is expected to exceed this sufficiently to warrant its use in preference to lead.

Lead lining, due to its weight, continually sags and breaks, requiring repairs. This difficulty has not occurred in the case of the rubber lining and therefore there is less time lost in repairing. The time lost in repairing lead linings is about 13 days during the 18 months' life of the lining.

The higher initial cost of the lead lining adds an appreciable interest charge that has not been considered in the cost tabulation.

Eminent British Rubber Chemist

Philip Schidrowitz, Ph. D., F. C. S., F. I. R. I., one of the foremost European chemists, was born in 1872 and received his early education at St. Charles College and University College School, London. He later attended the Federal Technical College, Zurich, and graduated at the University of Berne, Switzerland, in 1893. In the same year he became chemist for J. Turner & Co., Ltd., Queensferry, Flintshire, Wales. In 1896 he opened an establishment of his own as a consulting and analytical chemist at 57 Chancery Lane, London, W. C., 2, where he has since remained.

P. Schidrowitz, Ph.D.

Dr. Schidrowitz is a tireless student and experimenter, his activities taking a wide range and having a markedly practical turn, his specialty being the chemistry and technology of rubber. To study crude rubber gathering and preparing, he spent much time in the Federated Malay States and Borneo, and wrote "Rubber," (Methuen, London, 1911). He is also the author of numerous papers on the nature, uses, and properties of latex and crude rubber, on rubber growing, testing rubber manufactures, compounding materials, the theory and practice of vulcanization, etc. The results of his researches have been published in THE INDIA RUBBER WORLD, *India Rubber Journal* (London), *Journal of the Society of Chemical Industry*, and other trade and technological publications; and he is the author of articles in the Encyclopaedia Britannica and Thorpe's "Dictionary of Applied Chemistry." He has also conducted courses in rubber technology at the Northern Polytechnic Institute, Holloway, London, in which he was director of the rubber department (1920-1923).

The inventions of Dr. Schidrowitz, and for which patents have been granted, include processes for producing sponge rubber, adhesives, accelerators, latex-treated paper, for compounding rubber, and notably for the vulcanization of the rubber in latex, and its subsequent coagulation, whereby the product is adapted for many important industrial requirements.

For many years Dr. Schidrowitz has been consultant for various rubber growing companies. He is also member of the council, fellow, and honorary technical adviser of the Institution of the Rubber Industry, London; has been a member of the International Rubber Testing Committee and vice chairman of the rubber conferences at the London Colonial Exhibition, and is a member of the Chemical Society of England, member (past member of council) Society of Public Analysts, member (past member of committee) Society of Chemical Industry, fellow (past member of council) Institute of Brewing, and member of the Rubber Growers' Association of England. He is credited with being the first to suggest the term "low pressure" for the balloon tire.

Dr. Schidrowitz recently visited the United States and attended the Philadelphia meeting of the Rubber Division, A. C. S., where he read a paper on the use of rubber latex.

COLOMBIA'S INDIGENOUS RUBBER TREES

The native rubber trees of the Cartagena district of Colombia, South America, include mainly the *Castilloa elastica*, while balata is obtained from one variety of the Nispero (*mespilus germanica*), also known as the Medlar tree. Another type indigenous to the district is Sapodilla (*achras sapota*, or Zapote), which yields chicle.

All of the wild rubber obtained from Colombia during the past five years went to the United States, the figures, according to the Department of Commerce, varying from those for 1921 of 6,012 pounds, value $1,242, to the large total for 1925 of 79,709 pounds, value $28,138. The second largest shipment during this period was in 1923, with 21,690 pounds, value $4,830. The present price of rubber in Cartagena is about $0.15 a pound.

Balata exports, which in 1921 totaled only 14,158 pounds, value $5,988, have steadily increased in quantity during the last three years, as the following figures indicate: (1923) 79,669 pounds, value $48,106; (1924) 93,790 pounds, value $40,113; and (1925) 107,786 pounds, value $40,198.

A Modern Rubber Calender Room

Plan and Arrangement—Special Features—Standard Calender Operation—Roll Heats—Sheeting and Frictioning

THE calender room is last in the list of preparatory departments common to rubber factories. It is in this department that compositions are given sheet form and applied to fabrics, as the case may be, preliminary to cutting and making into rubber articles. In the general plan of rubber factory arrangement the location of the calender room is determined with particular regard to the receipt of mixed rubber stocks and fabrics and delivery of the calendered combinations for further processing. The success with which these conditions are met is an important factor in the efficient handling of the department work. The calender room should be as free as possible from dust, therefore it must not too closely adjoin the mixing room. Power connections and means for conveying the materials to and from the room are also important considerations.

Modern Calender Room

Every calender room should be planned with respect to the factory product. It follows that no special plan is necessarily best under all conditions. The outstanding example of rubber plant engineering here described is of general interest because it was designed for one of the foremost mechanical rubber goods manufacturing companies.

The room is so planned that the dry fabrics and rubber descend from the floors above at points most convenient for their processing by the calenders. The movement of all stocks is effected by electric hoists, overhead trolleys, or if at the floor level, by electric trucks.

Many very successful calender rooms are built for special rather than general products and naturally their location and arrangement conform to special requirements. Frequently these conditions involve the use of continuous delivery mechanism for cooling and carrying the calendered stock to the cutting department, as in the case of footwear or hose making.

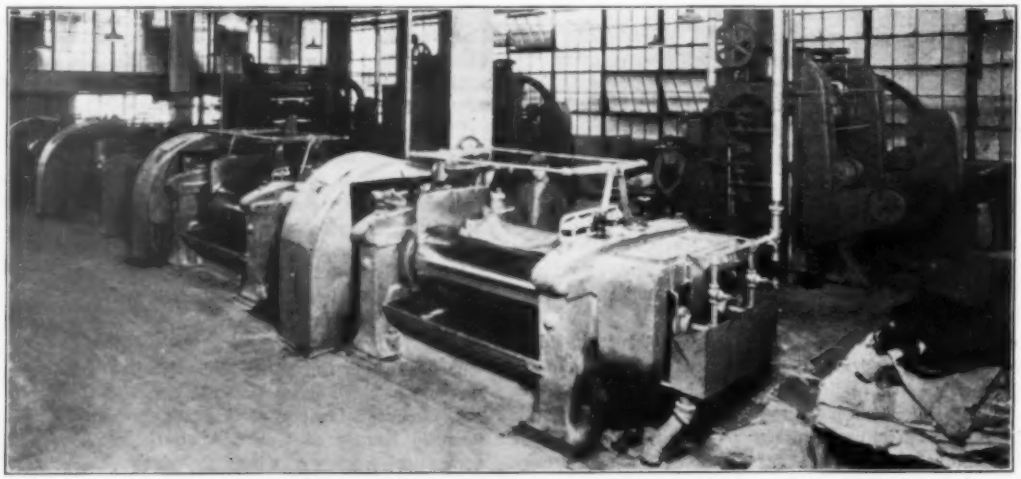
The arrangement of the room here described provides a broad passage or aisle occupying the center of the room. Bordering the passageway both sides are the individual warming mills for each calender. The latter stand between the mill lines and the walls of the building. Thus every calender in each of the lines is located near a window. This is a matter of much importance, insuring daylight for gaging the stocks, inspecting its output, and for the general convenience of the calender crews.

The stock required for the making up departments is assigned according to its nature to some definite calender of the group, and these are arranged with respect to the work done.

Calender Lines

Sheet calenders are on one side and friction calenders on the other. Thus at the head of one line stands the calender for running the plied up stock for cotton rubber lined fire hose and for roll covering. An emergency or spare calender of equal size and power with the first is next in line. This is followed by a similar one devoted to running hose and belting cover stocks.

Across the room from these machines is a line of three friction calenders and one sheet calender. First in this line is the friction calender for sheeting and light weight fabrics. It is speeded to 27 to 30 yards per minute. Next is the calender for tiling, sheet packing, cloth insertion, matting, etc. Of the two remaining calenders one is used for frictioning belting duck and the other for frictioning asbestos fabric for brake linings.



Calender Room of the Manhattan Rubber Manufacturing Co., Passaic, New Jersey

The warming mills and calenders are so positioned that the warmer for each calender is adjacent to the feed side of the latter, thus facilitating the work of feeding. The calenders and mills are of heavy design, electrically operated and controlled, utilizing power from the public service company.

Stock Temperatures

The correct temperature of stock warmed for calendering and of the heat of the calender rolls for properly frictioning and sheeting are points that tax the skill of the calender man. He must be able to judge these conditions accurately in order to properly operate

his machines on any given stock. In general those stocks containing large percentages of high grade crude rubber are calendered at much higher heats than those containing lower percentages of rubber or much reclaim. Calendering, in fact, is learned only by experience as regards handling the machine, its adjustments for gages and roll temperatures, plasticity of the warmed stock, tensions on the fabric and proper choice of tension in rolling up of the product.

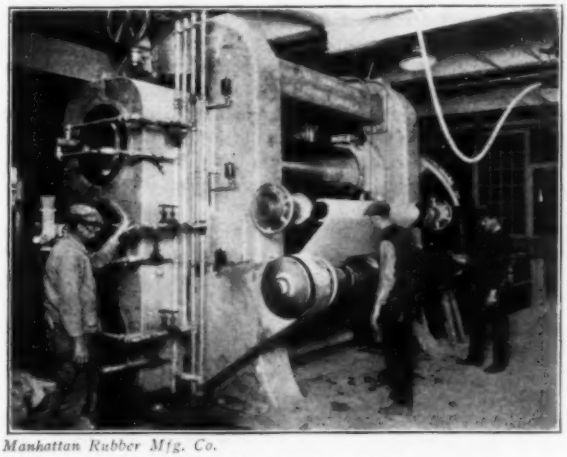
Formerly the absence of any appliance for measuring the surface temperature of calender rolls called for expert ability on the part of the calender man to judge closely the suitable heat required in the case of any stock. The general adoption of accelerators has greatly increased the sensitivity to heat of rubber stocks and added to the difficulties of the calender man. Fortunately, however, there are now available practical instruments for measuring accurately and quickly the surface temperatures of rolls. With such devices in hand all doubt as to the exact heat of the calender can be eliminated and adjustment made to the known correct working heat.

Handling Mixed Rubber Stocks

Mention should be made of the facilities and system by which rubber and fabrics for the calender room are handled. In the adjoining mill room two Banbury mixers are installed to break gum and mix. The larger of these machines, which serves the calender room, discharges by a short conveyer into a batching mill from which thin slabs of convenient size are cut and transferred by a slow moving endless belt conveyer to the stock aging storage room above. To suppress dust and aid in cooling the rubber each cut slab, as it is laid on the conveyer at the batching mill, is brushed on the top side with a wash of whiting. By the time the rubber reaches the aging loft its temperature is lowered sufficiently to permit piling without danger of scorching. When needed at the warming mills in the calender room it is sent down by elevator and handled on the level by electric trucks.

Handling Fabrics

Good calender work on fabrics requires that the fabric shall be delivered at the calender both dry and sufficiently hot to preclude absorption of moisture by the goods from the air. Dryness



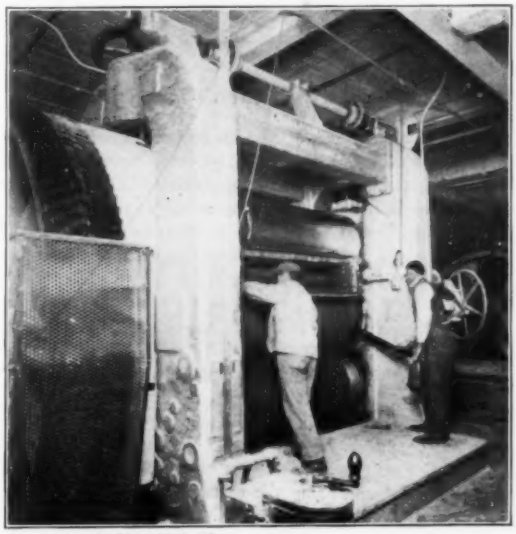
Manhattan Rubber Mfg. Co.

Calendering Rubber Sheets

of the fabric is particularly important for frictioning belting and hose ducks, tire fabric, etc., in order to secure the best possible bonding of the fabric plies. The cloth inspection and drying room is therefore located above the gum aging and storage rooms. On this level the ducks are stored, inspected and dried and delivered by vertical lowering hoists directly into the calender room at the friction calenders, as needed. When frictioned on both sides fabrics are practically protected against absorption of moisture and if skim coated subsequently, this work can be done with the goods at room temperature.

Common Calender Types

Calenders for rubber work are of two general types, one for frictioning fabrics and the other for sheeting rubber to a gage. Since the construction of most rubber goods requires the use of frictioned and sheeted rubber both types of calenders are found in nearly every rubber factory. The nature of the work determines



Manhattan Rubber Mfg. Co.

Frictioning Belting Duck

the size and weight of the calenders needed. Those in the room above described are of the heaviest sort for handling wide heavy ducks and broad, heavy gages of sheet rubber. They do not differ in type, however, from those employed in preparing stocks of lighter constructions.

Three-Roll Friction Calender

The term "frictioning" designates the process of coating the structure of a fabric by filling its meshes from one or both sides with rubber composition. This effect results from the difference in the relative speeds of the middle and bottom rolls by which the surplus rubber on the middle revolves as a roll or "bank" of gum against the surface of the fabric as it passes between these rolls at the slower speed of the bottom roll. This difference in speed forces the rubber through the meshes of the fabric while the surface of the goods also gains a light coating of rubber.

Modern practice in frictioning has speeded friction calenders for light goods to 25 to 30 yards per minute. Frictioning of hose ducks, belting ducks and wire-asbestos brake lining fabrics is done at more moderate speeds. A three-roll calender can be geared so that the ratio of the driving and driven rolls can be changed at will to produce the frictioning effect on fabric or the plain sheeting effect of sheeting the rubber to a gage. The latter effect is secured by speeding the rolls at the same rate sometimes known as "even motion" as distinct from "friction motion."

Three-Roll Even Motion Calender

The even motion or sheeting calender is usually heavier than the friction calender and is provided with hand or power means for close adjustment of the rolls for regulating the thickness of the sheet produced. The uniform speed of the rolls is without

grinding action on the stock and delivers it in a sheet of uniform gage and smooth on both sides. With such a calender sheets can be built up of any desired thickness by repassing the sheet as often as necessary through the calender.

The usual calenders for friction coating and sheeting are the basic machines from which many types of special calenders have been developed for running stocks in labor saving forms. These variations are classed as multiple-roll calenders. Some of these forms are old but many new roll combinations are coming into use particularly in the tire industry. When these machines are employed the calender room layout and operation is much more complex than that already described.

Euphorbia Trees in South Africa

The interest that has been stirred up by propaganda relative to possible shortage of crude rubber in the near future is bringing forth many new and unexpected developments. While the technicians of our great laboratories are busy trying to solve the problem of a cheap synthetic rubber, persons in the tropic and subtropical regions of the world are as busy discovering additional sources of natural rubber. Latest among the many plants to be reported as potential sources are the Euphorbia species of rubber plants which grow extensively in South Africa; particularly in Zululand and Natal.

The various varieties of Euphorbia trees which have been mentioned may be considered in two separate classes. One class includes the varieties known botanically as *Euphorbia Grandidens, Euphorbia Tetragona, E. Ingens,* and *E. Triangularis* or *Trigona.*

These varieties are found in greatest profusion in the deep gulleys and "kloofs" and along the eastern and northern slopes of

Euphorbia Trigona in the Buitenzorg Gardens

the mountain ranges. They form great clusters which cover a very extensive area. It is also reported that similarly covered areas are found for miles along the low flat lying country towards the lower reaches of the Tugela River where the southern bank of this river as well as the northern slopes of the high escarpment extending from Ktantzkop down to Mapumulo is one vast stretch of Euphorbias.

Dense clusters of these trees are also found growing in the several basins among the hills in the Ixopo area just south of the Umkomaas Valley.

Another large area is found in the Kei Valley where every kloof and gulley is a naturally growing plantation of Euphorbias.

The following are the chief characteristics of the Euphorbias of this first class: the trees are generally from 12 to 30 feet high and develop a stem 2 feet in diameter; they are more or less flat at the top; the branches are stoutish, ascending, and placed in candelabra fashion, and are succulent, leafless or almost so, peculiarly 3 to 4 ridged; the ridges are 1 to 1¼ inches deep and ⅕ inch in diameter, abundantly plated, set with spines in pairs along the top of the ridge. The flowers develop mostly as terminal and on the branches.

Class 2 is made up exclusively of the species botanically named *Euphorbia Tirucalli.* This tree is found in vast numbers almost everywhere throughout the Natal belts but particularly along the hot rocky slopes of the Tugela River and its tributaries, and on the eastern slopes of the Mooi River, between the latter river and Greytown.

Euphorbia Tirucalli seems to be limited to Natal. This is no doubt owing to its susceptibility to frost. In the native language this species is called "Umsululu." It grows to a height of 20 feet: is succulent and practically leafless. The stems are not ridged as in those of class one described previously; the stems have numerous green twigs like lead pencils, often drooping.

The trees yield abundant quantities of latex, which at first tappings is thick and coagulates very quickly. This is true of the Hevea plantation tree also. On further tapping the latex flows more freely. This would indicate a sort of wound response. However, tapping cannot be carried out on daily or alternate daily systems as is the case with plantations in the Far East.

Samples of latex from *Euphorbia Tirucalli* trees were analyzed at the Imperial Institute, London. They show this composition:

ANALYSIS OF LATEX

	Per Cent
Moisture	32.4
Caoutchouc	9.7
Resin	51.2
Proteid	0.9
Insoluble matter	5.8
Ash	2.5

COMPOSITION OF DRY MATERIAL

	Per Cent
Caoutchouc	14.3
Resin	75.8

It is seen that the latex contains an enormous amount of resin. The claim is made that a good market can be created for the resin and a means has been found to deresinate the latex completely.

The coagulum is washed and cut up by special machines to a homogeneous pulp. This pulp will contain particles of rubber, resins, other plant constituents and water. The pulp is led into settling tanks where impurities sink to the bottom and the rubber being lighter floats on top. The rubber is collected and put into pressing machines. But the rubber still has resin which must be removed. The deresinating is accomplished by a resin solvent. Best qualities of this rubber so far obtained show a resin content of from 3 to 5 per cent. There is a slight loss in solvent in the usual factory practice but it amounts to about 0.3 pound to each pound of rubber.

The twigs of Tirucalli are made use of as a source of rubber. They are clipped, baled, and sent to the factory where they are crushed between rollers and the rubber recovered from the washing tanks.

It is estimated that the value of this rubber is equivalent to a 75 per cent value of plantation rubber. Trials have been made of mixing Euphorbia rubber with plantation crêpe. The resins from the rubber contain cholesterols and some organic acids. The melting point of the resin is 80 degrees to 100 degrees C. and mostly unsaponifiable, and has proved useful for high grade varnish manufacture. The rubber seems to vulcanize well and appears to find its best usefulness for low grade to medium goods.

EXPORTS OF LOCAL PRODUCE FROM BRITISH GUIANA FROM JANUARY 1, 1926, to September 15, 1926, included 531,521 pounds of balata, as against 545,742 pounds for the corresponding period of 1925, the totals for rubber shipments also being 20,116 pounds and 2,776 pounds respectively.

Rubber Latex Compounds for Sealing Food Cans

A New American Development—The Canning Industry—Early Sealing Methods—Gold Seal Lining Compound—Automatic Compound Applying and Drying Machines

THE Propaganda Department of the International Association for Rubber Cultivation in the Netherlands Indies discloses in its third annual report that among the new uses for rubber now being developed is the employment of latex as a preservative covering for fruits and cheeses. An example is cited where latex has been used to cover tomatoes with a rubber skin to prevent them from rotting during a period of crop oversupply. In another case the same experiment has been tried replacing paraffin and animal bladder coverings in packing cheeses for export.

The greatest interest is displayed in the report, however, in the cooperative efforts of several preserving factories on the Continent to use latex for sealing the tops and bottoms of preserve tins. Few realize, perhaps, that what is in the experimental stage in Europe in this field has been on the market commercially in the United States since 1921. In 1919 the Dewey and Almy Chemical Co., of Cambridge, Massachusetts, started experimenting with latex compounds to replace the prevailing methods of sealing cans which were not satisfactory. In 1921 the Gold Seal lining compound with a latex base was brought out and has been so successful that it is rapidly replacing all other methods for sealing food cans. In fact, at this time practically every can manufacturer in this country is using this compound either exclusively or for the greater number of cans manufactured.

Fig. 1—Dewey and Almy Nozzle Lining Machines

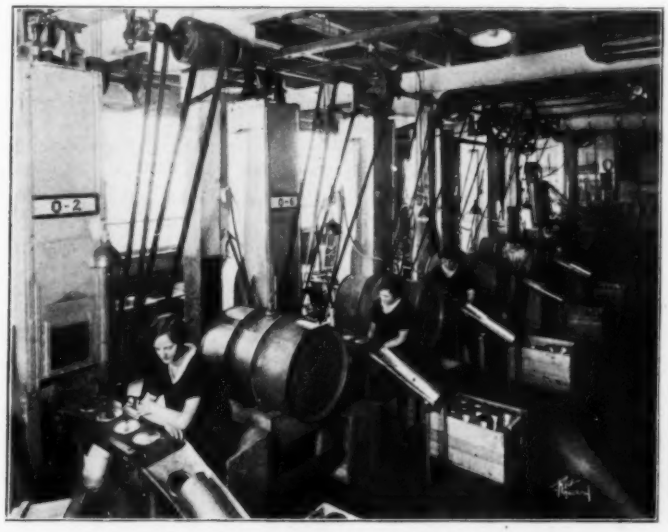


Fig. 2—Rear View Dewey and Almy Lining Machines

Figures of the United States Department of Commerce on the output of the canning industry in this country reveal the potential rubber consumption from this comparatively new source. During the year 1923, American canners packed 110,265,936 cases of 24 cans each, or 2,646,402,464 individual cans. Allowing 10,000 ends (two to a can) to a gallon of latex compound, this figures a probable consumption of 529,280 gallons of compound or approximately 132,320 gallons of pure latex. While this is not a large enough quantity to cause any apprehension in the event of a world rubber shortage, it is important and of interest in that it demonstrates that the full utility of rubber as a necessary raw material for the civilized world has not yet been fully realized. From 1921 through 1925 some 4,000,000 cans of fruit, fish, milk, beans, peas, corn, and spinach were sealed with Gold Seal compound.

The canning industry is one of the oldest in the United States and a brief outline of its history reveals the national scope of its operations. Canning was introduced into the United States by Ezra Daggett and Thomas Kensett who canned salmon, lobster, and oysters in New York in 1819, and by William Underwood in Boston, who, in 1820, put up some fruits, pickles and condiments in glass, principally for the export trade. Comparatively little further progress was made until the decade 1840-50 when fish canning was begun in Eastport, Maine, and oysters were canned in Baltimore. In 1845 the first canning company in Maine was organized although Isaac Winslow had canned corn there since 1839.

No canning seems to have been done in the Central States until about 1860, when tomatoes were first canned near Cincinnati, Ohio. Indianapolis was the birthplace of fruit and vegetable canning in Indiana about 1861. The canning of corn was started at Elgin, Illinois, the same year, and in Iowa it began with the construction of a cannery at Vinton in 1879. Pea canning in Wisconsin commenced with the building of a cannery at Manitowoc in 1881, and fruit and vegetable canning in California began shortly before the Civil War.

Other developments rapidly followed in the Far West and South Pacific Coast salmon was first canned on the Sacramento River in 1864, on the Columbia River about 1866, and in Alaska in 1878, when a cannery was erected at Klawack, on the Prince of Wales Island. The canning of sardines on a commercial scale began in Maine in 1875, and in California in 1890. Tuna fish was first canned in Southern California in 1907, and shrimp at New Orleans in 1875. Then followed the introduction of canned pineapple in

Hawaii, the first cannery for this product opened up near Honolulu about 1890. The great meat packing industry became interested in Chicago in 1872 and brought out a variety of canned meat products. Thus today canning is practically a national industry, with can manufacturers operating on a large scale with distributing depots convenient to the packers. Packing operations are by necessity carried on where the fruits, vegetables, meats, and fish are grown, slaughtered, or caught.

Rubber has been used for many years for sealing purposes in solution with benzol, also in a formed rubber ring similar to the rubber jar ring for cold pack. The formed rubber ring was the first seal to be used and this is still employed in some countries although the United States canneries abandoned it many years ago in favor of compounds, which are cheaper and more efficient. The rubber ring is very expensive in its initial cost as it deteriorates rapidly with age and is expensive and difficult to apply. Because of its bulky uneven cross section and the method of application, it is well-nigh impossible to obtain a uniformly tight seam with sealing protection at those points where it is most essential.

The formed paper gasket was introduced to the trade at a time when lining compounds were far from ideal. Early rubber-benzol sealing fluids contained not over three per cent of rubber, which is insufficient to insure a tight seam, especially with difficult packs or where constant highly skilled supervision of the double seaming operation—the process of sealing the can—is not practical.

The Dewey and Almy Chemical Co. became interested in the canning industry in 1919 when it brought out an improved rubber benzol compound, containing eight per cent of effective sealing material, producing a seal that would not shrink when dry nor pulp when wet, and which, with good practice could be relied upon to maintain permanently the full initial vacuum of the pack. This has been steadily winning favor over the paper gasket, but the rubber-benzol compounds have certain inherent defects, and a larger volume of pure rubber such as found in the latex compound gives a more perfect seal.

Gold Seal lining compound, as it is known to the trade, is made from preserved rubber latex received direct from the rubber plantations. It is then prepared by a patented process to give it the characteristics necessary for proper application in the compound applying machines, and to dry on the can end in a short space of time after application. The features which make it superior to other types of compounds are: (1) It dries to a continuous ribbon or gasket of rubber, heavier than has hitherto been possible, because it contains almost three times the rubber content of the best grade of ordinary rubber compounds, and six to eight times as much as lower quality seals. Its strength is illustrated in Figure 3, showing the continuous gasket formed by the latex compound removed from the top seal and holding the weight of the can when suspended from a nail. (2) It is a water emulsion, and is therefore non-inflammable. (3) The vapors given off during drying are non-toxic. (4) The rubber, being in its primary state of coagulation, is stronger, tougher, and more resilient than any rubber deposited from a benzol solvent. (5) The primary rubber is of such a nature that it has not the same tendency to depolymerization or deterioration upon aging as rubber from other sources. Ends lined with rubber have been exposed to light for three years with no sign of deterioration. (6) It is the only rubber compound which can be used successfully with lacquered ends. The benzol in ordinary compounds attacks the lacquer and thus introduces into the sealing film a small amount of oil which quickly causes it to deteriorate. Lacquered ends sealed with latex thus retain their sealing efficiency for years.

Application of the latex compound to the ends of cans requires machinery which has been specially developed for this purpose. Ordinary compound applying machines for use with benzol compounds are not adaptable to application of latex compounds. In the manufacture of cans, the cylinders and ends are made separately, the ends being fashioned with a groove at the outer edge in which a film of latex compound is applied. Thus the can manufacturer delivers to the packer the can in two parts, the cylinder or body with one end sealed on, and the second end to which the sealing compound has been applied. After the cans are filled, the packer seals the can on a double seaming machine, which first applies one end by rolling the edges of the end over and securing the seam by side pressure from sealing rolls. Thus the sealing compound forms a gasket in this seam which makes the can tight.

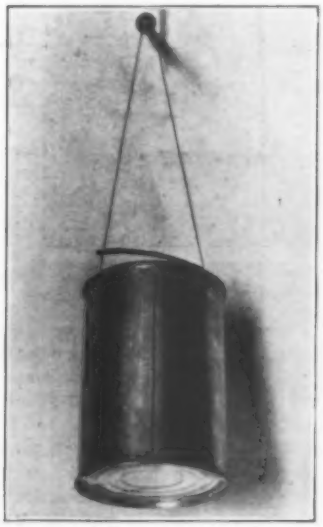


Fig. 3—Rubber Gasket Supporting Can

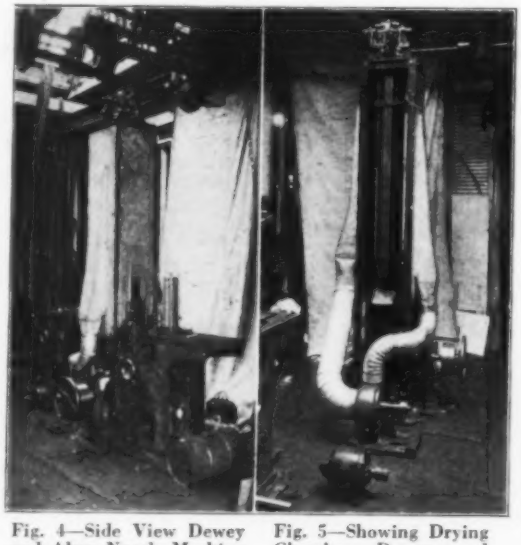


Fig. 4—Side View Dewey and Almy Nozzle Machine

Fig. 5—Showing Drying Chamber Dewey and Almy Machine

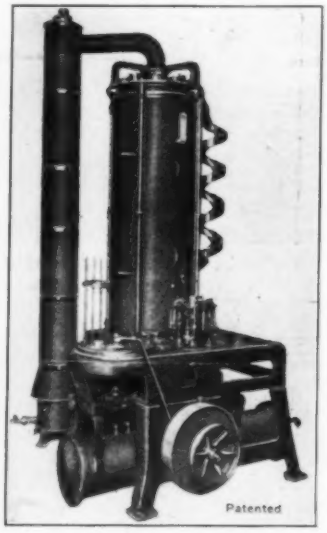


Fig. 6—Troyer-Fox Compound Applying Machine

The Troyer-Fox automatic compound applying machine and end drier shown in Figure 6, applies the compound to the can ends at the speed of 325 per minute, with 8 minutes being required in the drying chamber. It is a continuous motion machine and smoothly applies the compound in the groove. It is also equipped with a device so that if the supply of covers is exhausted the flow of compound ceases automatically. Adjustment features are provided to regulate the quantity of compound to be applied. This machine

is specially adapted for use by large can manufacturers who have big runs on one size of can, as adjustment from one size to another is not easily made.

For the small can manufacturer a slower machine, yet more easily adaptable to changes of size, has been developed by Dewey and Almy. Figure 1 shows a battery of nozzle lining machines in operation in a can manufacturing plant. The compound is forced by air pressure from drums adjacent to the lining machines under approximately 5 pounds pressure. Can ends are fed under the nozzle from a stack of several hundred which is replenished by the operator. As each end automatically drops into position it revolves several times so that a full, even distribution of the compound is obtained. It then passes into the drying chamber and in 6 minutes emerges at the other side completely dry.

Figure 2 shows the same battery of machines from the rear where the completed can ends are emerging from the drier and are being inspected by girls competent for that operation. The drums of compound with hose connections are also shown. Can ends which have skips or uneven distribution of compound are rejected and either returned for reapplication or thrown out entirely. Packers require rigid adherence to the standard of not more than three "leakers" per thousand, so that this inspection operation is very important.

Figures 4 and 5 reveal details of the same machine which can not be discerned so readily when they are in operation. On the tank of compound is mounted a pressure gage which must be watched to insure even flow of the compound. The nozzle for applying the compound on the end is also clearly revealed in Figure 4. The drying arrangements can be seen in Figure 5 where the drying chamber is opened. Heated air is pumped into the chamber by means of a blower arrangement. In the chamber the spiral conveyers can be seen between which the ends are moved continuously up and then down from the top of the drier to the opening at the bottom.

The speed of the Dewey and Almy machine is 120 ends per minute which is considerably less than the Troyer-Fox machine, but the drying time required is two minutes less, and the more flexible arrangements for change of size are also advantageous.

The rubber compound should contain a high percentage of crude and possess special flowing properties which are determined by observation and practice. The trouble with benzol compounds was that when the solvent evaporated it frequently left light spots where there was not enough rubber to fill all crevices and make up for any variation in thickness of the tin plate. With Gold Seal compound it is possible to line 70 to 80 milligrams of compound on a can end whereas with benzol compounds 40 to 50 milligrams was the maximum possible. The cost of latex compound to the can manufacturer is slightly more per gallon than the benzol compound but the actual cost per can end is less because of its greater percentage of total solids.

The cross sections in Figure 7 show the superiority of the latex sealing compound over the paper gasket or benzol solution varieties. They are cross sections of the seam of a sealed can. The paper gasket seal at the left is non-uniform owing to lack of strength in the sealing material. The rubber-benzol solution shows how very little compound is left after the solvent has evaporated and the pressure has been applied to the can seam to seal it. In the latex seam the rubber is evenly distributed throughout the crevices and makes a perfect seal of the can.

In the sealing of cans for paints and varnishes, ordinary rubber compounds cannot be employed successfully owing to the solvent action of these materials on the rubber. For this purpose special oil-proof compounds have been developed which will withstand the action of solvents and oil-base products. In some cans, seam dopes, which do not contain rubber, are used. These seam dopes replace the solder in the side seams as well as the end seams of the can. Unlike ordinary compound, seam dopes are applied and seamed before drying. Rubber lining compounds when applied to can ends and dried are usually stored for weeks at a time before the double seaming operation.

The latex compound method of sealing in no wise takes the place of the rubber fruit jar ring which is universally used by housewives for cold packing, as the former is a manufacturer's proposition in the canning industry. It represents not wholly a new use for rubber but rather a broadened application of it which makes for more perfect and better sealing of food in cans.

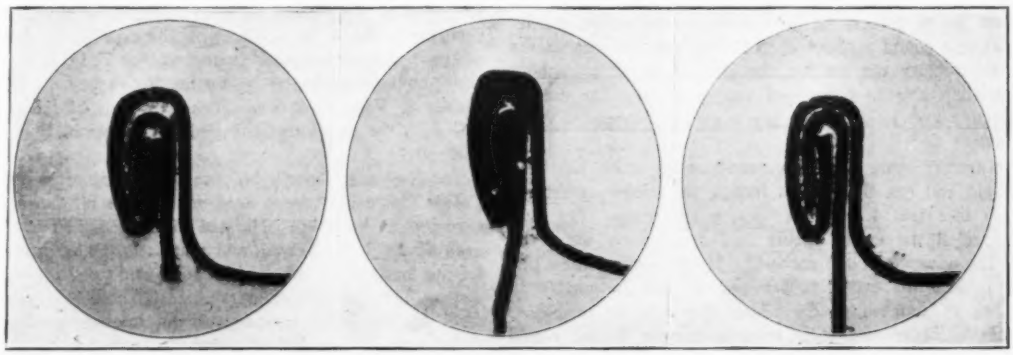


Fig. 7—Paper Gasket Seam **Rubber-Benzol Seam** **Gold Seal Latex Seam**

ABRASIVE INDEX

The wearing quality of a tire tread or power to resist abrasion is indicated for comparison by its abrasive index. This term is defined as the reciprocal of the percentage loss by volume of the rubber, figured from its loss of weight determined by the Akron-Standard abrasion machine operating under definite test conditions. The procedure is as follows: The weight pan of the machine is loaded with six pounds and the abrasion wheel is set at 15 degrees to the test disk. The test is then run until the counter indicates 3,361 revolutions, equivalent to a mile of surface travel.

The loss of weight found is calculated to percentage of the original weight of the test disk and converted into percentage loss by volume by dividing by the specific gravity of the test stock. The reciprocal of this percentage is known as the abrasive index. The reason for the reciprocal being taken is that the figure obtained increases as the wearing ability increases. In other words, the greater the resistance of a stock to wearing the higher its abrasive index will be.

FRENCH EXPORTS OF RUBBER BOOTS AND SHOES ARE ESTIMATED AS follows: 1922, 3,505,000 pairs; 1923, 2,279,000 pairs; 1924, 3,878,000 pairs; and 1925, 4,665,000 pairs.

Crude Rubber Hedging

Maurice Tingley

The protection of profits on crude rubber purchases by means of a hedge on the Rubber Exchange, is explained by the following example.

Many factories in order to keep the mills running and to have finished goods on hand to take care of unforeseen future orders, often buy crude materials and make a stock of finished goods. In that case the factory purchases crude rubber, let us say at 40 cents per pound. At some later date, during the time the crude rubber is in process of manufacture, the crude market rises 5 cents per pound without there being any advance in the price that the factory can get for the finished goods or without the factory being able to dispose of any of them. The market starts to decline and loses, let us say 1 cent per pound. What shall the factory do?

Shall the factory wait until the manufactured stock has been made and sold and run the risk of having the crude market recede and so lose this 4 cents per pound advantage. Or shall the factory resell the crude rubber and cash in on the profit created by the advance in the market? If the factory does this they must deliver the crude rubber and so will be unable to make a stock of finished goods. Also they will be unable to take any nearby orders for their produce because having resold the crude rubber there will not be any stock of finished goods to sell against. It is in such a situation as this that the Rubber Exchange can be of great service to the manufacturer.

The crude rubber was bought at 40 cents for making stock of finished goods and the market rose 5 cents per pound and declined 1 cent. The manufacturer can now hedge on the Rubber Exchange by selling future contracts at 44 cents per pound. This gives the factory a profit of 4 cents per pound, in addition to the regular manufacturing profit figured on all manufactured goods, provided he cares to deliver the crude rubber against the Rubber Exchange sales. This he will not want to do for it would deprive him of material to make stocks of finished goods and prevent the continuance of the manufacture and sale of rubber goods which is the principal interest of a rubber manufacturer.

Now that the 4 cents per pound difference has been established in favor of the manufacturer and the market is on a downward track, he does not care how low the market goes for the 4 cents is secured as soon as the market reaches 40 cents per pound as he can then buy back his Rubber Exchange contracts.

By this method of procedure the factory not only has the original manufacturing profit on the finished goods but also an additional profit of 4 cents per pound on the crude rubber purchases.

CORRECT TIRE PRESSURES

Balloon tires require for their fullest life that inflation pressure be closely adjusted to that designated by its designers as best for supporting the riding load. The air pressure carried at service stations is necessarily much higher than this in order to meet the inflation requirements for higher pressure tires for trucks, buses, etc. It is always a matter of guess-work when tires are thus inflated, and the chances are greatly in favor of over straining, if not bursting the tire.

The inconveniences and damage resulting from uncertain inflation pressures may be eliminated by an adjustable pressure feed and equalizing delivery chuck or fitting. This device is provided with a graduated sleeve, the turning of which sets the air pressure at any desired delivery. It is not only a help to insure correct tire pressure but it is also a source of economy to the service station by preventing the waste of air pressure.

ESSEX RUBBER CO. WINS IMPORTANT SUIT

The United States Supreme Court in an opinion delivered November 22, 1926, has finally determined the scope of Tufford patent for concavo-convex heel lifts. During the past ten years the I. T. S. Rubber Co., has sued several rubber manufacturers for infringement of this patent, and in the Midwest the Federal Courts held that the patent covered saucer-shaped concavo-convex heel lifts as distinguished from the prior scoop-shaped form. In 1920 the I. T. S. Co., brought suit in Boston against the Essex Rubber Co., Trenton, New Jersey, claiming that the latter's Tite-edge heel was an infringement. The Federal Courts in Boston took a different view and decided in favor of the Essex company. The I. T. S. Co. took the case to the Supreme Court where it was argued some months ago by F. O. Richey, Cleveland, Ohio, on its behalf, and by Lucius E. Varney, of Emery, Booth, Janney & Varney of New York on behalf of the Essex Rubber Co., with the result that the Federal Courts in Boston have been affirmed.

The Supreme Court holds that on account of proceedings in the Patent Office the patent does not include all saucer-shaped concavo-convex heels but is limited to a three-point contact heel lift, such as the I. T. S. heel, and that the patentee made this precise form a material element of his claims and cannot now enlarge their scope. The Supreme Court specifically holds that Tite-edge heels made by the Essex company do not infringe the Tufford patent, and directs that the bill of complaint be dismissed with costs.

REORGANIZATION OF N. T. D. A.—NEW OFFICERS

During the final session of the seventh annual convention of the National Tire Dealers' Association, held November 16-18 in Memphis, Tennessee, a refinancing program was organized, and new executives were elected. Officers for 1927 include the following: H. V. Eva, president; S. B. Harper, first vice-president; A. N. O'Leary, second vice-president; H. C. Baker, secretary; and W. McCaughan, treasurer.

Among the important measures discussed at the convention was the expansion of the solid tire division of the industry, and plans were considered in connection with the organizing of state associations in twenty states. These divisions are to hold quarterly meetings where attention is to be especially directed to the further development of the solid tire industry. Another important feature of the sessions was the tire, accessory, and equipment show, which attracted many visitors. It has been decided to hold next year's convention at Louisville, Kentucky.

TIRE PRICES REDUCED

As the result of the third substantial price reduction this year, effective November 15, the values of American automobile tires and tubes are at practically the lowest level in the history of the industry. The other price cuts of 10 per cent on February 3 and about 12 per cent on July 5 when combined with the present decline will approximately counterbalance the price advances of last year.

Although the various tire manufacturers were anticipating this present reduction, the Firestone Tire & Rubber Co., Akron, Ohio, was the first to definitely announce a cut of from 5 to 15 per cent. This move was soon followed by other important organizations, an average decline in prices of about 11½ per cent being announced by Goodyear, Goodrich, United States, Fisk, Miller, and other companies. While keen competition is probably the real cause for the change, the only apparent reason for a reduction at this time is said to be the desire of the manufacturers to reduce their surplus stocks by heavy spring dating business which begins December 1.

TIRE ACCESSORIES EXPORTED BY RUBBER MANUFACTURERS FROM the United States during the twelve months ended June, 1926, had a value of $1,468,016.

Census of Manufactures, 1925

Rubber Tires and Tubes

THE Department of Commerce announces that, according to data collected at the biennial census of manufactures, 1925, the establishments engaged primarily in the manufacture of rubber tires and inner tubes reported a total output valued at $925,032,833, an increase of 43.6 per cent as compared with $644,193,697 in 1923, the last preceding census year.

Of the total for 1925, $822,138,213 was contributed by tires and tubes and $102,894,620 by miscellaneous products. Tires and tubes are also made to some extent as secondary products by establishments engaged primarily in the manufacture of other rubber goods. The total 1925 production of tires and tubes by all establishments was valued at $824,548,604 and was made up as follows: Automobile and truck casings, 58,784,073, value $656,491,733; automobile and truck inner tubes, 77,387,836, value $118,234,658; motorcycle and bicycle casings, 2,080,773, value $3,564,933; motorcycle and bicycle inner tubes, 430,888, value $396,394; solid rubber tires for trucks, 1,035,226, value $43,870,387; other solid rubber tires, value $1,990,499. The production of automobile and truck casings and inner tubes increased materially as compared with 1923, but motorcycle and bicycle casings and inner tubes showed pronounced decreases.

Of the 126 establishments reporting for 1925, 44 were located in Ohio, 11 in New Jersey, 11 in Pennsylvania, 7 in California, 7 in Indiana, 5 in Connecticut, 5 in New York, 5 in Wisconsin, 4 in Iowa, 3 in Illinois, 3 in Maryland, 3 in Michigan, 3 in North Carolina, and the remaining 15 in Alabama, Colorado, Georgia, Massachusetts, Minnesota, Missouri, Nebraska, Oregon, Texas, Washington, and West Virginia. In 1923 the industry was represented by 160 establishments, the decrease to 126 in 1925 having been the net result of a gain of 4 establishments and a loss of 38. Of the 38 establishments lost to the industry, 22 went out of business prior to the beginning of 1925 and 16 were idle during the entire year.

The statistics for 1925 and 1923 are presented in Tables 1 to 6, herewith. The figures for 1925 are preliminary and subject to such correction as may be found necessary upon further examination of the returns.

TABLE 1. GENERAL STATISTICS TIRE AND TUBE INDUSTRY

	1925	1923	Per cent of increase or decrease (—)
Number of establishments	126	160	—21.2
Wage earners (average number)[a]	81,670	73,963	10.4
Maximum month	Aug. 88,535	Apr. 86,645	....
Minimum month	Jan. 75,340	Oct. 60,376	....
Per cent of maximum	85.1	69.7	....
Wages	$120,614,081	$108,623,102	11.0
Cost of materials (including fuel, electric power, and mill supplies)	$559,939,811	$365,165,016	53.3
Products, total value	$925,032,833	$644,193,697	43.6
Tires and tubes	$822,138,213	$563,258,387	46.0
All other	$102,894,620	$80,935,310	27.1
Value added by manufacture[b]	$365,093,022	$279,028,681	30.8
Horsepower	403,227	370,551	8.8

[a] Not including salaried employes.
[b] Value of products less cost of materials.

TABLE 2. SUMMARY TIRE AND TUBE INDUSTRY, BY STATES

	Number of establishments	Wage earners (average number)[a]	Wages	Cost of materials	Value of products	Horse power
United States						
1925	126	81,670	$120,614,081	$559,939,811	$925,032,833	403,227
1923	160	73,963	108,623,102	365,165,016	644,193,697	370,551
Ohio						
1925	44	50,350	76,491,597	330,554,798	556,262,424	219,341
1923	53	42,476	67,274,639	217,184,851	391,316,559	192,895
Wisconsin						
1925	5	3,939	5,394,471	29,015,000	46,271,447	18,296
1923	6	3,601	4,667,367	17,530,406	28,802,111	14,403
New Jersey						
1925	11	4,008	5,526,296	25,218,933	41,558,331	19,590
1923	15	4,287	5,860,466	17,806,842	30,755,862	19,551
Pennsylvania						
1925	11	3,065	3,838,509	16,157,323	25,784,062	18,090
1923	12	2,971	3,387,436	11,878,141	19,166,600	12,900
Other States						
1925	55	20,308	28,963,208	158,993,757	255,156,569	127,910
1923	74	20,628	27,433,194	100,770,776	174,152,565	130,802

[a] Not including salaried employes.
This table presents statistics for all states for which separate figures can be given in Table 5. See headnote, Table 5.

TABLE 3. SUMMARY AKRON, OHIO, TIRE AND TUBE INDUSTRY

Number of establishments	11
Wage earners (average number)[a]	43,391
Wages	$66,460,705
Cost of materials	$282,464,965
Value of products	$480,330,347

[a] Not including salaried employes.

TABLE 4. PRODUCTION TIRES AND TUBES BY NUMBER AND VALUE

	1925	1923	Per cent of increase or decrease (—)
Total value	$824,548,604	$569,130,559	44.9
Products of the industry proper[a]	822,138,213	563,258,387	46.0
Subsidiary products of the other rubber industries[b]	2,410,391	5,872,172	—59.0
Pneumatic			
Automobile and Truck			
Casings			
Number	58,784,073	45,425,591	29.4
Value	$656,491,733	$458,107,709	43.3
Inner Tubes			
Number	77,387,836	57,229,225	35.2
Value	$118,234,658	$74,982,725	57.7
Motorcycle and Bicycle			
Casings—			
Number	2,080,773	3,668,114	—43.3
Value	$3,564,933	$5,016,050	—28.9
Inner Tubes			
Number	430,888	642,696	—33.0
Value	$396,394	$672,955	—41.1
Solid			
Truck			
Number	1,035,226	944,337	9.6
Value	$43,870,387	$29,060,586	51.0
All other			
Value	$1,990,499	$1,290,534	54.2

[a] The term "industry proper" refers to the subgroup of establishments engaged primarily in the manufacture of rubber tires and inner tubes.
[b] These industries are: (1) The manufacture of rubber boots and shoes; (2) the manufacture of rubber products other than tires, tubes, boots, and shoes.

TABLE 5. AUTOMOBILE AND TRUCK CASINGS AND TUBES PRODUCTION, BY NUMBER AND VALUE, BY STATES

	Casings		Inner Tubes	
	Number	Value	Number	Value
United States				
1925	58,784,073	$656,491,733	77,387,836	$118,234,658
1923	45,425,591	458,107,709	57,229,225	74,982,725
Ohio				
1925	33,492,000	376,694,654	42,183,740	60,785,614
1923	26,326,665	257,267,935	30,831,097	39,686,299
Wisconsin				
1925	3,955,631	36,746,173	5,307,135	7,249,890
1923	2,160,206	21,832,594	3,101,356	3,709,488
New Jersey				
1925	2,377,882	28,783,693	4,111,853	8,929,497
1923	2,107,779	23,424,445	3,691,060	5,818,498
Pennsylvania				
1925	1,400,084	18,700,557	2,230,889	3,630,025
1923	1,417,207	16,262,369	2,658,628	3,120,921
Other States				
1925	17,558,476	195,566,656	23,554,219	37,639,632
1923	13,413,734	139,320,366	16,947,084	22,647,519

This table presents statistics for all states for which separate figures can be given without disclosing the operations of individual establishments. Certain of the "All other states," however, reported the manufacture of greater quantities of casings and tubes than some of the states shown separately.

The manufacture of motorcycle and bicycle tires and inner tubes in 1925 was reported by 13 establishments located in Connecticut, Indiana, Massachusetts, New Jersey, Michigan, Ohio, Pennsylvania, and Wisconsin. Over 40 per cent of the total number of casings were produced in Wisconsin and more than 30 per cent in Indiana; and of the total number of inner tubes manufactured, 39 per cent were produced in Ohio and 36 per cent in Indiana. The manufacture of solid tires for trucks was reported by 17 establishments located in Maryland, Massachusetts, Michigan, New Jersey, New York, North Carolina, and Ohio. More than 76 per cent of the total number produced were reported from Ohio. State figures for the foregoing cannot be given without the possibility of disclosing the operations of individual establishments.

TABLE 6. CRUDE RUBBER CONSUMED AND STOCKS HELD BY ESTABLISHMENTS ENGAGED PRIMARILY IN THE MANUFACTURE OF TIRES AND INNER TUBES, BY STATES

	Consumption in 1925, Long Tons	Stocks on Hand December 31, 1925, Long Tons
United States	335,873	29,666
Ohio	195,152	18,557
Wisconsin	17,415	651
New Jersey	16,505	798
Pennsylvania	8,346	647
Other states	98,455	9,013

This table presents statistics for all states for which separate figures can be given in Table 5. See headnote, Table 5.

Rubber Boots and Shoes

The establishments engaged primarily in the manufacture of rubber boots and shoes reported a total output valued at $115,934,554, a decrease of 12 per cent as compared with $131,739,742 in 1923, the last preceding census year.

The total for 1925 consisted of boots and shoes to the value of $105,398,341 and miscellaneous products, value $10,536,213. In addition boots and shoes to the value of $14,524,485 were made as subsidiary products by establishments engaged primarily in the manufacture of other classes of rubber goods. The total production of rubber boots and shoes in 1925 was made up as follows: Rubber boots, 4,739,423 pairs, value $16,027,904; rubber shoes and overshoes, 52,338,782 pairs, $80,076,608; canvas shoes with rubber soles, 24,999,932 pairs, $23,818,314.

Of the 23 establishments reporting for 1925, 10 are located in Massachusetts, 4 in Connecticut, 3 in Rhode Island, and the remaining 6 in Illinois, Indiana, New Jersey, New York, Pennsylvania, and Wisconsin. In 1923 the industry was represented by 25 establishments, the decrease to 23 in 1925 having been the net result of a gain of 1 establishment and a loss of 3. The establishments lost to the industry were engaged primarily in the manufacture of boot and shoe findings in 1925 and were therefore transferred to the appropriate industry classification.

The statistics for 1925 and 1923 are presented in Tables 1 to 5, herewith. The figures for 1925 are preliminary and subject to such correction as may be found necessary upon further examination of the returns.

TABLE 1. GENERAL STATISTICS RUBBER BOOT AND SHOE INDUSTRY

	1925	1923	Per cent of increase (+) or decrease (—)
Number of establishments	23	25	[a]
Wage earners (average number)[b]	24,999	29,435	—15.1
Maximum month	Dec. 26,842	Nov. 30,597	....
Minimum month	Aug. 22,357	Jan. 26,996	....
Per cent of maximum	83.2	88.2	....
Wages	$28,057,948	$33,670,810	—16.7
Cost of materials (including fuel, electric power, mill supplies, and containers)	$40,566,085	$45,268,988	—10.4
Products, total value	$115,934,554	$131,739,742	—12.0
Boots and shoes	$105,398,341	[c]	....
All other products	$10,536,213	[c]	....
Value added by manufacture[d]	$75,368,469	$86,470,754	—12.8
Horsepower	59,413	56,184	+5.7

[a] Not computed where base is less than 100. [b] Not including salaried employes. [c] Not tabulated separately. [d] Value of products less cost of materials.

TABLE 2. SUMMARY RUBBER BOOT AND SHOE INDUSTRY FOR UNITED STATES AND MASSACHUSETTS

	Number of establishments	Wage earners (average number)[a]	Wages	Cost of materials	Value of products	Horsepower
United States						
1925	23	24,999	$28,057,948	$40,566,085	$115,934,554	59,413
1923	25	29,435	33,670,810	45,268,988	131,739,742	56,184
Massachusetts						
1925	10	11,389	13,525,474	18,794,523	53,626,091	27,322
1923	10	12,528	14,650,810	18,874,520	56,917,929	25,708
Other States						
1925	13	13,610	14,532,474	21,771,562	62,308,463	32,091
1923	15	16,907	19,020,000	26,394,468	74,821,813	30,476

[a] Not including salaried employes.
Massachusetts is the only state for which separate figures can be given without disclosing the operations of individual establishments.

TABLE 3. RUBBER BOOTS AND SHOES PRODUCTION, BY NUMBER AND VALUE

	1925	1923	Per Cent of decrease
Total value	$119,922,826	$134,986,897	—11.2
Products of the industry proper[a]	105,398,341	[b]	....
Subsidiary products of the other rubber industries	14,524,485	[b]	....
Rubber Boots			
Pairs	4,739,423	9,097,896	—47.9
Value	$16,027,904	$23,573,097	—32.0
Rubber Shoes and Overshoes			
Pairs	52,338,782	60,102,775	—12.9
Value	$80,076,608	$83,031,542	—3.6
Canvas Shoes with Rubber Soles			
Pairs	24,999,932	26,114,073	—4.3
Value	$23,818,314	$28,382,258	—16.1

[a] The term "industry proper" refers to the subgroup of establishments engaged primarily in the manufacture of rubber boots and shoes.
[b] Not tabulated separately.

TABLE 4. RUBBER BOOTS AND SHOES PRODUCTION, BY NUMBER AND VALUE, FOR UNITED STATES AND MASSACHUSETTS

		United States	Massachusetts	Other States
Rubber Boots				
Pairs,	1925	4,739,423	2,630,358	2,109,065
	1923	9,097,896	3,029,054	6,068,842
Value,	1925	$16,027,904	$8,129,314	$7,898,590
	1923	$23,573,097	$8,591,670	$14,981,427
Rubber Shoes and Overshoes				
Pairs,	1925	52,338,782	19,254,267	33,084,515
	1923	60,102,775	21,616,851	38,485,924
Value,	1925	$80,076,608	$25,567,942	$54,508,666
	1923	$83,031,542	$26,361,580	$56,669,962
Canvas Shoes with Rubber Soles				
Pairs,	1925	24,999,932	10,695,512	14,304,420
	1923	26,114,073	12,897,649	13,216,424
Value,	1925	$23,818,314	$9,922,069	$13,896,245
	1923	$28,382,258	$13,071,941	$15,310,317

Massachusetts is the only state for which separate figures can be given without disclosing the operations of individual establishments.

TABLE 5. CRUDE RUBBER CONSUMED AND STOCKS HELD BY MANUFACTURERS OF RUBBER BOOTS AND SHOES, FOR UNITED STATES AND MASSACHUSETTS

	Consumption in 1925 (Long Tons)	Stocks on hand December 31, 1925 (Long Tons)
United States	15,901	2,166
Plantation	13,741	1,745
Pará	827	219
All other	1,333	202
Massachusetts	7,536	935
Other states	8,365	1,231

Massachusetts is the only state for which separate figures can be given without disclosing the operations of individual establishments.

BUREAU OF STANDARDS TO CELEBRATE

In commemoration of the twenty-fifth anniversary of the establishment of the Bureau of Standards, Washington, D. C., the offices of the organization will be open to visitors on December 4, and a banquet will be held in the evening. For the latter occasion many distinguished guests are expected, while achievements of the past quarter of a century will be reviewed, and present and future work discussed.

TO THE PROFESSIONAL COLLOID CHEMIST SHOULD COME A BLUSH of shame every time he looks at the rubber tires of his automobile. He didn't do it, he cannot explain it, and he has not right to any credit for the advance of rubber technology.—W. B. Wiegand.

Dealers' Stocks of Tires, October 1, 1926[1]

FINAL statistics compiled by the Department of Commerce during the fifth semi-annual survey of stocks of automobile tires held by dealers in the United States show that average dealer's stocks of casings, inner tubes, and solid tires on October 1, 1926, were notably lower than on October 1, 1925, but that the number of balloon tires stocked per dealer and the percentage of dealers handling balloon tires, have increased. Over 2,000 more tire dealers cooperated by submitting forms than in any previous survey.

Individual returns from 37,439 dealers having automobile casings on hand were used in this final compilation; of these 24,454 dealers reported stocks of balloon casings for 20, 21-, and 22-inch wheels. The statistics for October 1, 1926, compared with the compilation for October 1, 1925, are shown herewith.

The average dealer holds 6.7 fewer automobile casings now than a year ago, 5.3 fewer inner tubes, and 1.1 fewer solid tires. The percentage of dealers handling balloon casings has increased from 46 per cent October 1, 1925, to 65.3 per cent October 1, 1926; the percentage of balloon casings to total casings in stock increased from 14.2 per cent to 25.9 per cent in the same period, reflecting the growing importance of balloon tires in the replacement trade.

A comparison of the average total casings per dealer with the average inner tubes per dealer shows the average dealer is now carrying 1.88 inner tubes for each casing, as compared to 1.75 one year ago, and 1.49 two years ago. While the average stock of solid tires is about normal, the smaller percentage of dealers reporting such stocks this year may indicate that fewer dealers now handle solids.

The number of dealers who carry casings and not inner tubes appears to be increasing; two years ago 1,319 more dealers reported inner tubes than casings; one year ago 168 fewer dealers, and this year 492 fewer dealers reported inner tubes than casings.

The existence of larger stocks at this time in the hands of

[1] Special circular No. 1307. Rubber Division, Department of Commerce, Washington, D.C.

DEALERS' STOCKS OF AUTOMOBILE TIRES

	October 1, 1926			October 1, 1925		
	Number	Dealers Reporting	Average Per Dealer	Number	Dealers Reporting	Average Per Dealer
Total casings	1,866,770	37,439	49.9	2,000,150	35,331	56.6
Balloon casings	483,896	24,454	19.8	283,552	16,240	17.5
Inner tubes	3,465,310	36,947	93.8	3,486,120	35,163	99.1
Solid and cushion tires	47,560	1,992	23.9	53,060	2,122	25.0

DEALERS' STOCKS OF AUTOMOBILE TIRES BY STATES, OCTOBER 1, 1926

	Total Tires			Balloon Tires		Inner Tubes		
	No. of Dealers Reporting	No. of Tires on Hand	Average No. Per Dealer	No. of Dealers Reporting	No. of Tires on Hand	No. of Dealers Reporting	No. of Tubes on Hand	Average No. Per Dealer
Alabama	384	18,274	47.6	222	3,990	381	34,039	89.3
Arizona	206	9,721	47.2	131	2,830	202	18,844	93.3
Arkansas	476	19,394	40.7	266	4,663	477	41,271	86.5
California	1,978	112,207	56.7	1,294	31,140	1,958	193,507	98.8
Colorado	489	23,506	48.1	317	5,588	487	40,706	83.6
Connecticut	344	15,520	45.1	221	3,884	346	27,723	80.1
Delaware	53	2,442	46.1	31	559	54	3,953	73.2
Dist. Columbia	45	2,876	63.9	28	700	43	5,410	125.8
Florida	428	40,434	94.5	276	11,490	418	74,120	177.3
Georgia	454	28,159	62.0	284	6,972	451	68,605	152.1
Idaho	259	8,472	32.7	179	2,582	254	16,160	63.6
Illinois	1,842	93,267	50.6	1,218	24,983	1,799	190,553	105.9
Indiana	1,321	61,424	46.5	851	16,062	1,303	109,803	84.3
Iowa	1,341	63,978	47.7	895	12,704	1,318	120,885	91.7
Kansas	1,066	54,306	50.9	755	13,734	1,064	93,275	87.6
Kentucky	514	27,794	54.1	297	5,863	522	75,610	144.8
Louisiana	368	23,487	63.8	207	8,125	380	56,546	148.8
Maine	502	17,033	33.9	273	4,887	506	29,247	57.8
Maryland	379	19,306	50.9	185	3,924	378	39,717	105.1
Massachusetts	976	56,287	57.7	660	14,686	889	102,413	115.2
Michigan	1,450	77,361	53.4	991	27,446	1,432	146,616	102.4
Minnesota	1,188	53,908	45.4	776	14,016	1,169	89,298	76.4
Mississippi	383	17,939	46.8	214	4,141	381	37,393	98.1
Missouri	1,270	57,820	45.5	718	12,839	1,283	116,151	90.5
Montana	338	14,044	41.6	240	4,119	331	26,274	79.4
Nebraska	655	39,149	59.8	453	7,954	652	66,168	101.5
Nevada	63	3,466	55.0	17	840	64	5,237	81.8
New Hampshire	244	9,354	38.3	158	2,774	241	17,662	73.3
New Jersey	731	35,765	48.9	465	9,820	705	64,806	91.9
New Mexico	224	7,178	32.0	126	1,721	219	12,895	58.9
New York	2,327	128,009	55.0	1,538	34,576	2,297	229,196	99.8
No. Carolina	625	29,542	47.3	322	7,416	624	58,002	93.0
No. Dakota	584	14,448	24.7	381	3,926	577	30,720	53.2
Ohio	2,252	125,461	55.7	1,422	31,860	2,202	191,727	87.1
Oklahoma	757	45,003	59.4	498	14,353	756	99,086	131.1
Oregon	524	25,328	48.3	356	7,095	500	40,829	81.7
Pennsylvania	2,982	128,588	43.1	2,803	35,383	2,953	221,152	74.9
Rhode Island	150	7,033	46.9	89	1,666	149	13,554	91.0
So. Carolina	323	12,590	39.0	157	2,261	329	29,933	91.0
So. Dakota	473	16,686	35.3	326	4,293	463	32,679	70.5
Tennessee	403	27,932	69.3	225	4,828	413	60,337	146.0
Texas	1,629	102,018	62.6	988	24,535	1,618	193,359	119.5
Utah	204	10,886	53.4	126	3,161	207	22,082	106.7
Vermont	218	6,143	28.2	129	1,549	209	9,983	47.8
Virginia	855	31,758	37.1	386	5,991	841	68,036	80.9
Washington	793	33,204	41.9	482	11,813	785	51,705	65.9
West Virginia	499	19,603	39.3	258	4,823	498	36,678	73.7
Wisconsin	1,206	58,448	48.5	804	11,801	1,179	97,835	83.0
Wyoming	148	6,047	40.9	103	1,360	145	10,473	72.2
Unallocated	516	24,172	46.8	293	6,170	495	43,057	87.0
Total	37,439	1,866,770	49.9	24,454	483,896	36,947	3,465,310	93.8

DEALERS ACCORDING TO VOLUME OF STOCK, OCTOBER 1, 1926

Casings	No. of Dealers	Per Cent of Total	No. of Casings	Per Cent of Total	Average Per Dealer
Under 10	9,257	24.73	46,811	2.51	5.1
10-25	12,014	32.09	197,865	10.60	16.5
26-50	7,840	20.94	287,638	15.41	36.7
51-100	4,832	12.91	338,612	18.14	70.1
101-200	2,207	5.89	304,547	16.31	138.0
201-300	592	1.58	145,843	7.81	246.4
301-400	265	.71	95,836	5.13	361.6
401-1,000	307	.82	182,572	9.78	594.7
Over 1,000	125	.33	267,046	14.31	2,136.4
Total	37,439	100.00	1,866,770	100.00	49.9

NUMBER OF MAKES OF TIRES HANDLED

Number of Makes Stocked	October 1, 1926		October 1, 1925		October 1, 1924	
	No. of Dealers	Per Cent of Total	No. of Dealers	Per Cent of Total	No. of Dealers	Per Cent of Total
One	16,652	44.82	14,392	41.64	10,338	40.22
Two	13,702	36.88	12,626	36.53	9,564	37.21
Three	4,714	12.69	5,218	15.10	3,911	15.22
Four	1,545	4.16	1,609	4.65	1,262	4.91
Five	356	.96	524	1.51	450	1.75
Six	182	.49	196	.57	176	.69
Total	37,151	100.00	34,565	100.00	25,701	100.00

MANUFACTURERS' STOCKS OF TIRES

	Automobile Casings	Inner Tubes	Solid and Cushion Tires
September 30, 1925	5,760,974	7,462,837	135,940
*September 30, 1926	7,103,145	11,556,160	168,643

*Preliminary statistics.

manufacturers should be considered in connection with the reduced stocks in the hands of dealers. The statistics herewith were prepared from reports of manufacturers by the Rubber Association of America, Inc., which estimates the statistics to represent 75 per cent of the tire manufacturing industry.

Assuming these statistics for casings and inner tubes to be 75 per cent complete for the entire American tire industry and raising them to 100 per cent, manufacturers' stocks on October 1, 1926, appear to be about 1,790,000 casings and 5,458,000 inner tubes larger than on October 1, 1925. Manufacturers now hold about 44,000 more solid and cushion tires than a year ago. Consideration of these facts should be valuable in connection with planning tire production during the coming six months.

The tabulation of dealers' stocks by states presents the total stocks of casings, stocks of balloon casings for 20-, 21-, and 22-inch wheels, and stocks of inner tubes, in hands of dealers reporting on October 1, 1926. These averages in the case of particular states are frequently influenced by the inclusion of reports from especially large dealers. Florida reports far the highest average stock of casings, 94.5 per dealer, Tennessee with 69.3 ranking second. States reporting lowest stocks of casings per dealer are North Dakota, Vermont, New Mexico, Idaho, Maine and South Dakota. Florida, Georgia, Louisiana, Tennessee and Kentucky, all southern states, reported largest average stocks of inner tubes, and Vermonth, North Dakota, Maine and New Mexico the lowest average stocks.

The tabulation of number of dealers according to volume of stock in which 37,439 dealers are divided according to the size of stocks reveals that 24.73 per cent had stocks of less than 10 casings each and 53.03 per cent had stocks of from 10 to 50 tires. Taken together, however, the dealers with stocks of less than 51 casings held only 28.62 per cent of the total casings reported.

The number of dealers reporting stocks of solid or cushion tires on October 1, 1926, was 1,992, and the number of such tires reported on hand was 47,560, an average of 23.9 tires per dealer. This compares with 2,122 dealers on October 1, 1925, reporting 53,060 tires, or 25.0 tires per dealer.

Of the 38,768 dealers reporting, 20,559 sell batteries, 26,264 sell tire repair materials, 24,713 repair inner tubes, and 4,827 vulcanize tires.

Legal Decisions

New York Board of Standards and Appeals

Suit 492-26-A.—Legality of Constructing Metal Roof for Rubber Cement Plant.—Ira L. Sloman, appellant. In this case the plaintiff filed on June 1, 1926, an appeal from a decision of the fire commissioner, affecting premises at 171 Thompson avenue, Long Island City, New York, and proposed to construct for his rubber cement factory a No. 26 gage metal roof on open steel trusses, in lieu of a 6-inch concrete roof as required by law. It was resolved that the decision of the fire commissioner should be modified, the appeal being granted only so far as the construction of the roof is involved on condition that the construction otherwise comply with the regulations in all respects and that the roof covering shall be of corrugated metal, supported by steel truss frame, in accordance with drawings submitted.—*Bulletin New York Standards and Appeals*, Volume 11, No. 44, page 1145.

Customs Appraisers' Decision

No. 969.—Protest 124003—G. of John H. Faunce, Inc. (New York). Auto tubes and tires classified at 10 per cent ad valorem under paragraph 1439, tariff act of 1922, are claimed free of duty as American goods returned. Opinion by Young, J. The regulations of the Secretary of the Treasury for free entry of American goods not having been complied with the protest was overruled.—*Treasury Decisions*, Volume 50, No. 19, page 45.

No. 1008.—Protests 142350-G, etc., of Thomas W. Hall Co. (New York). Printers' blankets in chief value of india rubber classified as manufactures of cotton under paragraph 921, tariff act of 1922, are claimed dutiable as manufactures in chief value of india rubber at 25 per cent under paragraph 1439. Opinion by WELLER, J. It was stipulated that the printers' blankets in question are in chief value of india rubber similar to those passed upon in Abstract 49253. They were therefore held dutiable under paragraph 1439 as claimed.—*Treasury Decisions*, Volume 50, No. 20, page 10.

Patent Suits

900,055, I. F. Burnham, squeeze roll for wool-washing machinery, appeal filed Dec. 14, 1925, C. C. A. (3d Cir.), Doc. 3437, R. J. Wilkie v. Manhattan Rubber Manufacturing Co.—*Official Gazette*, Volume 350, page 689.

1,570,937, A. P. Brand, garter and arm band, suit filed April 1, 1926, D. C., N. D. Ill. (E. Div.), Doc. 5726, M. B. Brand et al. v. Health-Tex Products Corp.—*Official Gazette*, Vol. 350, p. 246.

1,506,874, 1,515,453, T. A. Willard, storage battery, suit filed Dec 24, 1924, D. C. Ind. (Indianapolis), Doc. E 887, Willard Storage Battery Co. v. Yale Storage Battery Co. Case dismissed without prejudice Apr. 28, 1926.—*Official Gazette*, Volume 351, page 688.

Des. 64,404 Glidden & Perrault battery box, suit filed Apr. 14, 1925, D. C. Ind. (Indianapolis), Doc. 917, Hood Rubber Co. v. Rub-Tex Products, Inc. Bill dismissed without prejudice May 3, 1926.—*Official Gazette*, Volume 351, page 688.

1,307,733, A. V. Gullborg, lubricating apparatus; 1,307,734, same, lubricating means, suit filed Mar. 4, 1926, D. C. N. Dak. (Southeastern Div.), Doc. E 365, The Bassick Mfg. Co. v. Grant-Dady Co. Same, suit filed Aug. 30, 1926, D. C., W. D. N. Y., Doc. E 1022, The Bassick Manufacturing Co. v. Pittsburgh Tire & Sales Co. Same suit filed Sept. 18, 1926, D. C., E. D Okla., Doc. E. 3493, The Bassick Manufacturing Co., v. J. M. Moore.—*Official Gazette*, Volume 352, page 294.

Butyl Alcohol Patent Decision

Commercial Solvents Corporation vs. Synthetic Products Co., Ltd. In the High Court of Justice, Chancery Division, London, England. This action for infringement of patent No. 4845 granted to Dr. C. Weizmann was decided in favor of the plaintiff. This invention relates to the production of acetone and alcohol by fermentation processes, and has for its object to produce large yields by the fermentation of starchy bodies with or without admixture of other carbohydrates in a simple way. The special rubber interest of this patent is that it affords a means for making cheap butyl alcohol for the manufacture of synthetic rubber.—Reports of Patents, Design and Trade Mark Cases. Volume XLIII, No. 7, London.

THE LEADING MARKET DURING AUGUST FOR AMERICAN AUTOmobile casings was the United Kingdom, taking 16,483 casings, value $276,614; 9,916 inner tubes, value $25,840; and 1,123 solid tires, value $31,217. Other important customers were in the following order: Argentina, Cuba, Mexico, Sweden and Germany. In September the United Kingdom again led, followed by Germany, Argentina, Cuba, Mexico, and the Philippines.

AUSTRALIA'S IMPORTS FOR THE FISCAL YEAR ENDED JUNE 30, 1926, included rubber manufactures to the value of £3,240,262, as compared with a total of £2,347,019 for the corresponding previous year.

What the Rubber Chemists Are Doing

The Guanidines as Accelerators[1]

H. W. Elley and D. H. Powers[2]

THE aryl substituted guanidines have been the subject of numerous investigations and their importance and value as accelerators of the vulcanization of rubber have long been established. Their annual consumption in the rubber industry is close to 3,000,000 pounds and reaches approximately fifty per cent of the total accelerator sales. At the present time, the trend is toward faster cures at lower temperatures giving accelerators of this class wider application in combination with the ultra accelerators. Results have been obtained which have not been secured with either type of accelerator independently. It is of particular importance to note that the guanidines in combination with certain of the ultra accelerators give stocks which are not only extremely flat-curing but also show remarkably high resistance to abrasion.

While patents as early as 1897[3] covered the preparation of the guanidines it was not until 1916 that King suggested[4] the use of urea derivatives "such as guanidines" as accelerators. In 1917 Twiss[5] pointed out that amino guanidine, tested as the bicarbonate salt, showed accelerating action. Later, however, attention was directed to the marked activity of the aryl guanidines and triphenyl guanidine found commercial application. Kratz, Flower, and Coolidge[6] in 1919 showed the high accelerating activity of the mono and diphenyl guanidines as compared with triphenyl guanidine. Bedford and Sebrell, in 1921, discussed[7] some very interesting reactions of the guanidines showing that they chemically combined with hydrogen sulphide to form ammonium sulphide derivatives. They suggested that these compounds might be formed during vulcanization and in turn would be converted to polysulphides which would give up active sulphur for the vulcanization. In 1922 W. Scott[8] suggested a different set of reactions between the guanidines and hydrogen sulphide based on the view that the disubstituted guanidines existed in the "amino" rather than the "imino" form.

Scott showed further that the activity of the guanidines was not due to their decomposition products, especially since diorthotolyl guanidine (DOTG) was both more active and more stable than diphenyl guanidine (DPG). At the September meeting of the American Chemical Society at Milwaukee in 1923 Boord and Coolidge gave a paper describing a large number of guanidine derivatives as well as their decomposition products. They were also able to isolate certain of the reaction products of DPG with hydrogen sulphide. They prepared a number of guanidine-dithiocarbamates which were found to be only slightly stronger than the original guanidines and all showed a marked tendency to badly overcure.

Sebrell and Vogt[9] in 1923 described the effect of the acetone soluble constituents of rubber on the physical and chemical properties of accelerated rubber stocks. They showed that, contrary to expectations, the acetone extracted rubber gave better accelerated stocks with DPG than similar stocks prepared from rubber containing the resins. This is surprising as the rubber containing the resins would be expected to yield far more of the hydrogen sulphide which was supposed to activate the DPG. It was suggested that the zinc oxide rather than the hydrogen sulphide reacted directly with the DPG to form a complex and it has been repeatedly shown that zinc oxide activates DPG accelerated mixes.

In 1923, Bruni and Levi[10] pointed out that when DPG and sulphur were heated together in a sealed tube at 260 to 270 degrees F. a good yield of mercapto benzo thiazole was obtained, while triphenyl guanidine only formed it in very poor yields. If this reaction occurs during vulcanization, it offers an interesting explanation of the activity of the guanidines. However, Sebrell and Vogt[9] have shown that acetone extracted rubber gives extremely poor cures when mercapto-benzo-thiazole is used while excellent cures are obtained with DPG. Further study of the stress-strain curves of these two compounds makes it appear improbable that DPG is converted to mercapto-benzo-thiazole during vulcanization.

Ames[11] in 1924 published the results of an extensive study of DPG with varying percentages of zinc oxide and sulphur and recommends five to seven per cent of sulphur. Naunton[12] published

United States Patents on Guanidines

1,597,233	R. V. Heuser to A. C. Burrage. Phenyl-o-tolyl guanidine.
1,593,385	G. H. Buchanan to American Cyanamid Co. Mixture of DPG and DOTG.
1,589,757	A. F. Hardman to Kelly Springfield Tire Co. Thio urea and ammonia producing DPG in rubber.
1,575,884	C. S. Williams to Roessler & Hasslacher Chemical Co. Mono-phenyl guanidine.
1,575,865	P. M. Paulson to Roessler & Hasslacher Chemical Co. Mono tolyl guanidine.
1,555,256	E. Romani to E. Smith. Zinc alpha-phenyl biguanide.
1,546,877	M. L. Weiss to Dovan Chemical Co. Mercapto-benzo-thiazole and DPG.
1,546,876	M. L. Weiss to Dovan Chemical Co. Dimethyl-dithiocarbamate-DPG.
1,538,076	J. Young to National Aniline & Chemical Co. Mixture of DPG and DOTG.
1,521,739	M. L. Weiss to Dovan Chemical Co. Dibenzyl-dithio-carbamate-DPG.
1,496,792	H. L. Trumbull to The B. F. Goodrich Co. Aldol and DPG.
1,466,535	L. P. Kyrides to National Aniline & Chemical Co. Method of making triphenyl guanidine.
1,465,743	G. H. Stevens and C. H. Eaton. Tetra phenyl melamine and DPG.
1,446,818	J. Young and E. Croakman to National Aniline & Chemical Co.
Re. 16,040	Reissue of U. S. P. 1,446,818. Method of making DPG.
1,437,419	R. V. Heuser to Atlantic Dyestuff Co. Method of making tritolyl guanidine.
1,422,506	M. L. Weiss to Dovan Chemical Co. Method of making DPG.
1,411,231	M. L. Weiss to Dovan Chemical Co. Method of making DPG.
1,149,580	Hofmann and Gottlob. Ammonium compounds stronger than 1 x 10^{5} dissociation constant.

[1] Based in part on the paper of this title, given before the Rubber Division of the American Chemical Society at Akron, Ohio, February, 1926.
[2] E. I. du Pont de Nemours & Co., Wilmington, Delaware.
[3] United States patent No. 605,977, covering trianisyl guanidine as anaesthetic and germicide.
[4] King, *Chem. & Met. Eng.* 15, 23 (1916).
[5] Twiss, *J. Soc. Chem. Ind.* 36, 786 (1917).
[6] *Ind. Eng. Chem.* 12, 319 (1920).
[7] *Ind. Eng. Chem.* 14, 25 (1922).
[8] *Ind. Eng. Chem.* 15, 286 (1923).
[9] *Ind. Eng. Chem.* 16, 792 (1924).
[10] Atti accad. Lincei (V) 32, ii, 313 (1923).
[11] *J. Soc. Chem. Ind.* 43, 117T (1924).
[12] *J. Soc. Chem. Ind.* 44, 549T (1925).

in 1925 an article summarizing numerous methods of preparing the guanidines. He emphasizes their stability in high boiling solvents and probable stability in the rubber. In the diaryl substituted guanidines he found that the greater the activity the greater the molecular weight of the substituent aryl groups. Tetra-methyl-diamino-diphenyl-guanidine was the most active compound mentioned. Glancy, Wright and Oon[13] showed the value of DPG in vulcanizing hard rubber stocks. Their results show, in hard rubber with high percentages of sulphur, that the DPG appears to act solely as a sulphur carrier, speeding up the rate of combination of the rubber and sulphur, and having no effect on the final strength of the product.

Dinsmore and Zimmerman[14] in 1925 described the effect of accelerators on the cure and quality of different rubbers. They showed that stearic acid and tannic acid retarded DPG and pointed out that variations in the rate of cure with different rubbers was undoubtedly due to the presence of varying amounts of the resin acids and natural accelerators. Numerous papers have lately appeared in which one of the guanidines has been used as the accelerator in the particular stocks being investigated, for example in the study of guayule[15], reclaimed rubber[16], cure criteria[17], coagulation of raw rubber[18], humidity[19], the effect of clays[20], and still others. Recently papers have been presented by Naunton in England and this country in which he has studied the guanidines and shown the harmful effects of negative groups and has suggested the interesting theory that the accelerator may activate the rubber rather than the sulphur. Boord and Reed have studied the polysulphide derivatives of the guanidines and made an important contribution to the chemistry of this class of compounds. Recent references to the preparation of the guanidines are found in the articles of Naunton[21] and Hutin[22].

ACCELERATING ACTIVITY OF THE GUANIDINES

ACTIVE	MILD	INACTIVE
Tetramethyldiamino diphenyl guanidine	*Tetra methyl guanidine*	*Dinitro diphenyl guanidine*
Diortho anisyl guanidine	*Dimethyl guanidine*	*Hexa nitro diphenyl guanidine*
Dimeta xylyl guanidine	*Dibenzyl guanidine*	*Disulphonic diphenyl guanidine*
Diortho xylyl guanidine	*Amino guanidine*	*Creatinine*
Dipara tolyl guanidine	*Triphenyl guanyl thio urea*	*Hydroxy methyl cyano guanidine*
Dimeta tolyl guanidine	*Triortho tolyl guanidine*	*Dicarbethoxy guanidine*
Diortho tolyl guanidine	Tripara tolyl guanidine	*Dithio carbethoxy guanidine*
Phenyl ortho tolyl guanidine	Tri meta xylyl guanidine	*Dibenzoyl guanidine*
Diphenyl guanidine	Diphenyl para tolyl guanidine	*Dinitro dibenzoyl guanidine*
Mono phenyl guanidine	Diphenyl ortho tolyl guanidine	
Triphenyl biguanide	Diphenyl meta xylyl guanidine	
Benzal amino guanidine	Diortho tolyl phenyl guanidine	
Dipara chloro diphenyl guanidine	Diortho tolyl meta xylyl guanidine	
Dibromo diphenyl guanidine	*Triphenyl guanidine*	

It is clear that the existing data relative to the guanidines give no entirely satisfactory explanation for their activity. As a further study of this class of compounds a number of guanidines both known and new have been prepared and tested. The table above summarizes the results obtained and compares them relatively to all of the guanidines previously described in the literature. The result of this study has shown clearly that the guanidines owe their activity to the combination of a number of favorable contributing causes. They must be basic compounds but their activity by no means varies directly with their basicity. Their activity increases in many cases with increasing molecular weight but the substitution of negative groups invariably decreases it. Clearly a combination of physical as well as chemical properties makes the diaryl substituted guanidines the most important of present day accelerators.

[13] *Ind. Eng. Chem.* 18, 73 (1926).
[14] *Ind. Eng. Chem.* 18, 144 (1926).
[15] INDIA RUBBER WORLD 72, 652 (1925).
[16] Winkelmann, *Ind. Eng. Chem.* 18, 1163 (1926).
[17] Wiegand, *Ind. Eng. Chem.* 18, 1157 (1926).
[18] Dinsmore, *Ind. Eng. Chem.* 18, 1140 (1926).
[19] Stringfield, *Ind. Eng. Chem.* 17, 833 (1925).
[20] Thies, *Ind. Eng. Chem.* 17, 1165 (1925).
[21] *J. Soc. Chem. Ind.* 45, 34 (1926).
[22] *Caoutchouc et la Gutta-percha*, 23, 13, 297 (1926).

The compounds italicized in the preceding table have been prepared and studied by the authors in the course of this investigation.

No survey of an organic accelerator would be complete without reference to the patents relative to it. Listed on the preceding page are those issued in this country up to the present. It is clear that several of them appear to cover the same field and it is particularly true of this group of patents that their value can only be estimated after legal controversy.

Thionex—a Low Temperature Accelerator

Vulcanization at low temperatures through the use of ultra-accelerators is not a new development from a scientific point of view. Accelerators which are chemically closely related to Thionex were known and their many advanages recognized by forward-looking rubber chemists fifteen years ago. The advantages which tetramethyl-thiurammonosulphide displays over other accelerators of the same type were discovered approximately five years ago but it is only recently that means have been discovered of producing this accelerator at a sufficiently low cost to make possible its widespread use in all types of rubber compounds.

Tetramethyl-thiurammonosulphide, a true ultra-accelerator which can be handled with safety, is now manufactured and sold under the name Thionex. It is a yellow crystalline compound which is finely ground to insure perfect dispersion in the rubber and is marketed in its pure form which makes possible its use in very small amounts. Its outstanding characteristic is that compounds which contain it have surprisingly little tendency to scorch, considering the marked activity of the accelerator at curing temperatures only a little above the boiling point of water. Thionex can be used with very small percentages of sulphur but, unlike some other ultra-accelerators, it will not cause vulcanization in the absence of sulphur. In non-blooming stocks from 1.5 to 1.75 per cent of sulphur based on the rubber content is recommended. In the following low sulphur compound great accelerating effect is obtained by using a very small percentage of Thionex: smoked sheets 100, zinc oxide 5, sulphur 2, Thionex 0.2. This mixing will vulcanize in approximately 20 minutes at 20 pounds steam and has a tensile strength of about 3,300 pounds per square inch. If 3 per cent of sulphur is used it will vulcanize in approximately 15 minutes with a tensile strength of 4,000 pounds per square inch.

Thionex is especially suitable for white and light colored compounds, since it discolors less during vulcanization than any of the ordinary high temperature accelerators. Transparent stocks can be produced in compounds which contain less than 1 per cent of zinc oxide. Exceedingly attractive semi-transparent colored rubbers can be produced by using Thionex and many organic colors with zinc oxide as the only available filler. It is applicable not only in high grade compounds but in the lowest quality mechanical goods as well. It imparts excellent snap to compounds which contain a large percentage of mineral rubber and reclaims, even when it is used in as small an amount as ⅛ of 1 per cent.

Experiments with Unmasticated Rubber

The effect of the addition of fine fillers such as colloidal clay on the tensile properties of raw rubber has been demonstrated by W. Cecil Davey from whose recent paper[1] the following excerpts are taken.

Relative to raw rubber alone, marked stiffening took place but probably owing to flaws the test rings broke too short for the "slope" of the flatter part of the stress-strain curve to be recorded. Other fine fillers were tried unsuccessfully, but interesting results were obtained by using glue.

Latex was sprayed with the addition of increasing amounts of glue. After keeping the sprayed mixtures for a day, they were molded for 5 minutes at 20 pounds steam. The slabs were left

[1] *J. Soc. Chem. Ind.*, October 22, 1926, 364T-365T.

for 3 days, after which rings were cut and tested. It was found that the tensile tests were greatly affected by the room temperature, therefore a series of rings was tested together.

The breaking strains of rubber containing glue are of the same order as those of simple vulcanized rubber-sulphur mixings. The "slopes" of the curves are higher than the usual figures for vulcanized sprayed rubbers, which vary from 32 to 36, but are, nevertheless, lower than those of some rubbers which have been recorded. The glue-rubber mixtures were influenced much more by changes of temperature than vulcanized rubber is, and they had an exceedingly high permanent set, so that after rupture the rings looked like pieces of string. It is clear that the incorporation of a fine filler into raw rubber does in some respects simulate vulcanization, and the tensile figures give additional support for recent theories on this basis.

The following experiment was tried to test the statement frequently made that unmasticated vulcanized mixes are superior to ordinary masticated vulcanized ones owing to the mastication having broken down the rubber.

A mixture of latex, "colloidal" sulphur, and glue was sprayed in order to prepare a product of powdery texture. Some of this material was pressed into slabs in the way previously stated. Another lot was pressed and then masticated on an experimental mill for about 10 minutes till quite soft. After a period of storage the rubbers were cured together in a daylight press at 50 pound steam. On testing, the unmasticated rubber gives higher breaks than the masticated. It develops a high tensile strength early and maintains this over a long range. The elongations at standard loads remain exceedingly constant, the opposing effects of the breaking down of the rubber by heat and building up by vulcanization evidently very closely balancing one another. The elongations for the unmasticated rubber are higher than those of the masticated, which is an unexpected result.

The combination of rubber and sulphur follows a normal course with unmasticated rubber, and mastication slightly increased the rate of combination. Except for the masticated rubber being a little darker in color, there was no difference in the appearances of the rubbers, and for equal times of cure there was no marked difference in the amounts of swelling produced by benzene.

Zinc Oxide in Airbags

The highest records in airbag service heats are possible with stocks containing 70 per cent of zinc oxide such as the American Process grades universally standard in tire and mechanical rubber goods. These grades need not be absolutely free from lead since color is not essential in the rubber stock.

The recently developed patented Palmerton Process zinc oxides, known as the Kadox brands, were designed primarily to meet the special requirements of the rubber industry which for some time has appreciated the relationship between extremely fine particle size and reinforcing effect.

As a consequence of this reduction in particle size, rubber stocks compounded with Kadox give higher tensile strength, greater resistance to abrasion, and a more accelerated cure than other zinc oxides. The average particle size is slightly under 0.20 μ. On account of this extreme fineness Kadox has very little pigmentive or obscuring power. However, due to the lack of tendency to turn yellow during the cure, Kadox, used in conjunction with Albalith, produces extremely white rubber stocks.

Chemical Patents

The United States

1,602,624. PLASTICATING PROCESS. The addition in a rubber mixing of a suspension of a heat decomposable material in a liquid boiling above 100 degrees C. as a plasticator.—C. O. North, Tallmadge, assignor to The Rubber Service Laboratories Co., Akron, both in Ohio.

1,603,317. VULCANIZATION METHOD. The addition of an amidothiophenol and application of heat.—Clarence M. Carson, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,603,318. RUBBERIZED FIBER COMPOSITION. A quantity of fibers is suspended in a solution of rubber and the combination heated to effect depolymerization of the rubber and precipitating it upon the fibers. The liquid is strained away from the fibers and the latter cured as a mat.—J. T. Charleton, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,603,320. UNITING RUBBER WITH FABRIC. The process comprises bringing a sulphur impregnated fabric into contact with a sheet of unvulcanized rubber.—Henry J. Conroy, Akron, Ohio, and Russell A. Hayworth, Toronto, Ontario, Canada, assignors to The Goodyear Tire & Rubber Co., Akron, Ohio.

1,603,334. LINER FOR RUBBERIZED MATERIAL. A composition embodying free sulphur and a material adapted to wet the sulphur is applied to a fabric liner.—Herbert A. Endres, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,603,335. RUBBERIZED FIBER COMPOSITION. A method of controlling the precipitation of rubber in solution by regulation of the temperature of the solution.—James M. Gillet, Milwaukee, Wisconsin, assignor to The Goodyear Tire & Rubber Co., Akron, Ohio.

1,604,199. ACCELERATOR. A mercapto-benzo-thiazole is produced by forming a salt of an aryl dithiocarboanic acid, mixing sulphur with it and heating the mixture to 100 to 400 degrees C. under a pressure between 100 and 3,000 pounds per square inch.—Lorin B. Sebrell, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,605,180. RUBBER ISOMER. A new composition of matter the product of the reaction, under the influence of heat, of p-phenol sulphonic acid dispersed through a mass of undissolved rubber.—Harry L. Fisher, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,605,572. REINFORCED RUBBER FLOORING. The addition of ground uncured frictioned fabric to a rubber composition.—James H. Stedman, Braintree, Massachusetts.

1,605,649. RUBBER TREATED FABRIC. Hair cloth impregnated with dried latex rubber.—Ernest B. Curtis, Brooklyn, New York, assignor to American Rubber Co., East Cambridge, Massachusetts.

1,606,595. RUBBERIZED FIBER COMPOSITION. Fibers are treated by separating them, causing rubber particles to adhere to them by treating with a liquid comprising a mixture of a rubber precipitant and a rubber solvent, then curing the product.—William G. O'Brien, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

The Dominion of Canada

265,088. CHEWING GUM. Composition of hydrogenated oil of melting point between about 55 and 65 degrees C. rubber, gum chicle and a resinous material.—Henry V. Dunham, Bainbridge, New York, U. S. A.

265,188. CUSHION TIRE. A rubber cushion tire body applied over a coating of cement containing a high percentage of zinc oxide in connection with a brass plated iron base.—The Goodyear Tire & Rubber Co., assignee of Richard S. Burdette, both of Akron, Ohio, U. S. A.

265,189. ACCELERATOR OF VULCANIZATION. Amidoxim or its derivatives.—The Goodyear Tire & Rubber Co., assignee of Lorin B. Sebrell, both of Akron, Ohio, and Dexter N. Shaw, Philadelphia, Pennsylvania, all in U. S. A.

265,210. TREAD STOCK. A rubber fiber tread stock consisting of particles of partially cured rubber and fiber united by interstitial latex rubber gel.—The Rubber Latex Research Corporation, Boston, assignee of William B. Westcott, Dover, both in Massachusetts, U. S. A.

265,325, 265,326 265,327, 265,328 and 265,330. STYROL. A vitreous polymerized material for molded articles.—The Canadian Consolidated Rubber Co., Ltd., Montreal, assignee of Iwan Ostromislensky, New York, N. Y., U. S. A.

265,329. SHEET MATERIAL. A woven strain-resisting base with a waterproof flexible rubber facing which covers but does not fill the meshes of the base.—The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of Alfred E. Jury, Rutherford, New Jersey, and Merwyn C. Teague, Long Island, New York, both in U. S. A.

265,521. AROMATIC HYDROCARBON. An improved method of alkylating aromatic hydrocarbons according to the Friedel and Crafts reaction.—The Dominion Rubber Co., Ltd., Montreal, Quebec, assignee of M. G. Shepard, Waterbury, Connecticut, U. S. A.

The United Kingdom

257,243. WATER JAPAN EMULSIONS. A mixture of oxidized linseed and China wood oils, rubber, lampblack and sodium carbonate is heated until dispersion ensues. Asphaltic material such as gilsonite and also resin and sulphur are added and the whole dispersed in boiling water.—British Thomson-Houston Co., Ltd., Crown House, Aldwych, London, assignees of W. P. Davey, Schenectady, New York, U. S. A.

257,388. REMOVAL OF SOLID TIRES FROM STEEL BASES. Tire and tool are emersed in a boiling solvent enclosed in a steam chamber to permit the stripping effect to be done by the circumferential movement of the tool.—A. J. Evans, 34 Gresley Road, Upper Holloway, London, and T. B. Hopkins, 3 Queen Victoria Road, Llanelly, Carmarthenshire.

257,516. ARTIFICIAL LEATHER. A rubber and fiber plastic composition of complex mixture containing asbestos fiber.—A. Blasco 1, Alfonzo, Barcelona, Spain.

257,559. COLLECTING LATEX. Vaseline or paraffin wax is applied adjacent to tapping cuts to prevent the latex from leaving the cut and flowing over the bark in wet weather. The substance is also placed above the cut to deflect rain water flowing down the trunk from the tapping area.—Sir M. Watson, Batu Blah, Klang, Selangor, Federated Malay States.

257,718. RUBBER ADHESIVE COMPOSITION. An example consists of 100 parts of tapioca meal, 15 to 300 parts of rubber latex, and ¼ to 5 parts of lime. Casein and filling materials may also be added.—A. Biddle, 1288 East State street, Trenton, New Jersey, U. S. A.

Germany

435,444 February 9, 1923. Method of producing rubber mixings. Ernest Hopkinsen, New York. Represented by: R. H. Korn, Berlin S. W. 11.

435,487 March 8, 1925. Method of producing artificial sponge. Ludwig Mostny, Linz an-der-Donau. Represented by: C. Huss, Berlin S. W. 61.

435,700 August 2, 1923. Method of combining leather and rubber. Ernst Knecht, Elnshorm b. Hamburg.

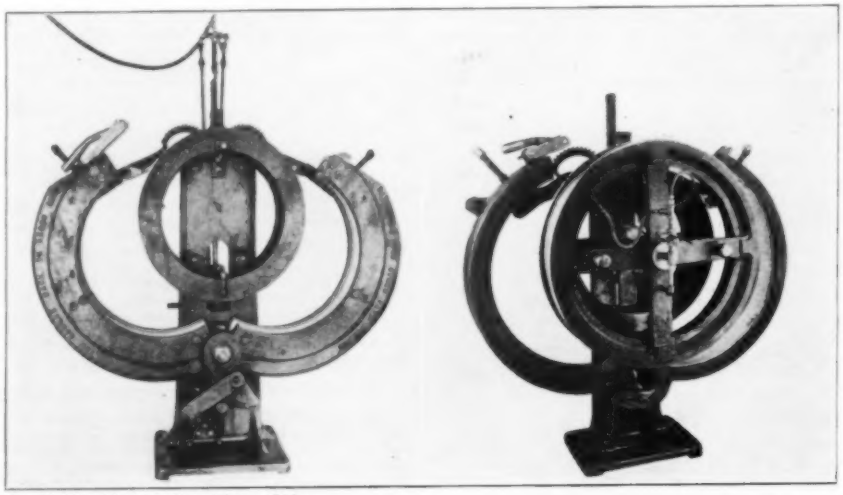
New Machines and Appliances

Inner Tube and Flap Molds

A QUICK opening vulcanizing mold for inner tubes is represented in the illustration. The parts are mounted on a heavy post or pedestal. The outer halves of the mold are hinged at the bottom and close together over the fixed central part of the mold. Their movement is accomplished by air pressure actuating a combination of levers through a rack and segmental gears. The mold sections are chambered and piped for steam heating.

A mold for tire flaps similar in principle and operation to the inner tube mold here described is also pictured. It differs somewhat in the details of its arrangement but is operated in essentially the same way. In curing flaps airbags are used to force the rubber strip against the heated sections of the mold so that the edges are automatically tapered.

Both these vulcanizers are of recently patented construction and are meeting with general favor in tire manufacturing plants. By their use curing costs are reduced by reason of the facts that there is no trimming needed and one man can operate several machines.



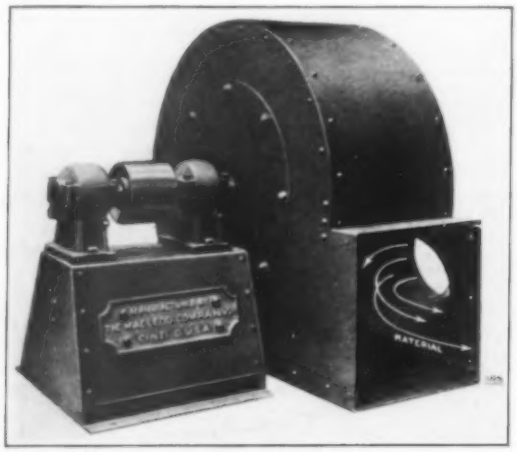
The Kuhlke Machine Co., Akron, Ohio.

TUBE MOLD FLAP MOLD

Kuhlke Tube and Flap Vulcanizers

High Efficiency Exhaust Fan

Some form of exhaust fan is extremely necessary in many departments of a rubber plant, particularly to remove the dust from mixing rooms or paper and other light sweeping waste. A low power high efficiency fan of this type is here illustrated. Its peculiar feature is a projected inlet adjacent to its discharge outlet instead of a center inlet as contained in ordinary fans. This admits of the material being discharged without passing through the wheel or around the housing. Thus the housing and the wheel do not wear out but last indefinitely.



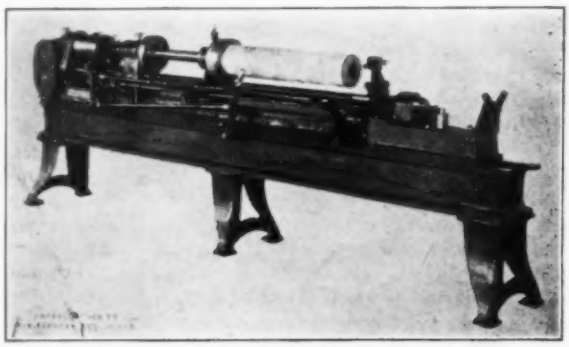
Macleod-Keeney Exhaust Fan

In action, the air is forced centrifugally to the side of the housing opposite the wheel, and the pressure of the air passing the projected inlet creates a suction of nearly 7 ounces without requiring any greater horsepower than center inlet fans. — The Macleod Co., 2232 Bogen Street, Cincinnati, Ohio.

Rubber Stock Cutting Off Machine

The machine here pictured is designed for cutting plies of calendered rubber wound upon a paper mandrel into rolls varying in width from 1/8 inch to 2 inches. Such strip stock is useful for tire bead filling.

The roll of calendered rubber is slid over a steel mandrel and supported in a circular chuck which has sharp pins to engage the rubber roll, and give it rotation through the power connections at the left end of the machine.



Black Rock Roll Stock Cutting Machine

The usual practice in cutting such material has been reversed by keeping the knife in a fixed lateral position. That is to say, the knife moves only inwardly and outwardly and cuts only at the end of the mandrel. The rolls of cut stock are automatically dropped on a bent rod held in a heavy weight which rests upon the floor. Thus when the advancing chuck has practically reached the knife all of the cut rolls are upon the rod and can be taken off for immediate use.

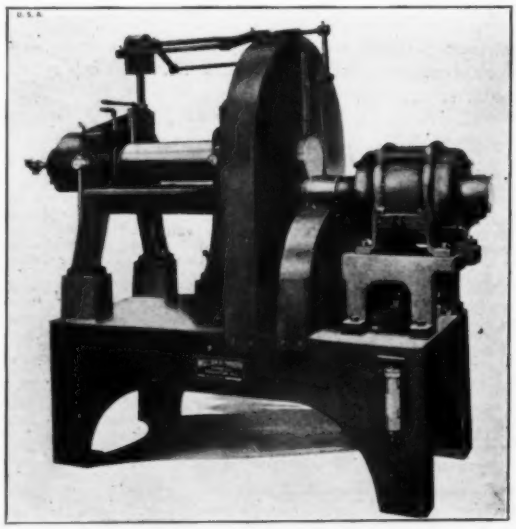
The machine is constructed to operate either a straight or a circular knife. By a series of gears at the back of the machine the feeding in of the knife may be regulated to suit the nature of the work. In other words, the rate of feed of the knife may be at the rate of 1/16 or ¼ inch per revolution of the mandrel.

This machine will cut frictioned fabrics of various textiles. It is almost entirely automatic in action. The lever in front is used to start the rotation of the work, sets in motion a gear train which furnishes a quick return of the work to the bead stock. At the point where the entire work covers the mandrel the feeding mechanism is automatically reversed and the stock is fed intermittently and automatically forward. At the same time the knife is brought into action.—The Black Rock Manufacturing Co., Bridgeport, Connecticut.

Laboratory Mixing Mill

Every rubber plant manager who aspires to keep up to date in the development of his compounding requires some form of experimental mixing mill as a part of the laboratory equipment.

One of the newest mills of this sort is that here pictured. It is mounted at a convenient height on a heavy cast base extended to



Thropp Laboratory Mill

support the motor. The mill rolls are 6 by 16 inches, geared at mixing ratio. A steel mixing pan rests below the rolls on guides.

A special feature of the mill is its equipment with safety appliances. This includes steel guards enclosing the roll connecting gears, master gear, pinion and jack shaft. The safety stop has overhead levers and bars that operate in either direction from either side of the mill. This movement throws a small switch that is in series with a low voltage release on the motor and at the same time it operates a hand reset brake that stops the momentum of the machine.

The Alemite system of lubrication is fitted for safe and convenient lubrication of all moving parts.—William R. Thropp & Sons Co., Trenton, New Jersey.

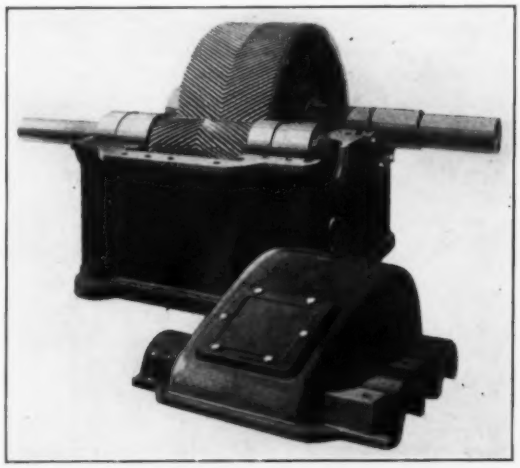
Circular Mandrel Polishing Machine

A belt polishing machine specially designed for cleaning and polishing circular inner tube mandrels is here pictured. It is operated by an independent 5-horse power motor mounted on the floor, and not attached. The machine is lubricated throughout by the alemite system. The work table has a vertical adjustment of 10 inches. The range of work is from 2 inches to 12 inches. The polishing belt runs at high speed and bears on the mandrel as a loop over its upper surface. For sherardized mandrels one pass on a No. 150 emery belt and one pass on a 6-ply canvas belt covered with tripoli compound suffices to give a high polish. For aluminum mandrels the same passes are given and in addition another on canvas belt with tallow, depending on how much luster may be required.—The New Haven Sherardizing Co., Hartford, Connecticut.

Polisher for Circular Mandrels

Herringbone Reduction Gear

Herringbone gears when properly made are an ideal type for use in speed reduction. Those here illustrated have unusual operating advantages for reduction ratios from 2 to 1, to 150 to 1, and are able to carry loads of 2 to 200 horsepower. They are particularly suitable where heavy equipment is driven as in the case of rubber plants.



James Continuous Tooth Herringbone Gear

These reducers embody the double helical principle giving a result similar in appearance to the joining of two single helical

gears having opposed helix angles. Thus each tooth is brought to an apex and has the shape of a complete V with its apex not broken or rounded for tool clearance because the individual teeth are generated with a curve or twist which presents the same profile in the normal and the diametrical planes of the gear.—D. O. James Manufacturing Co., 1120 West Monroe street, Chicago, Illinois.

Molded Inner Tube Machine

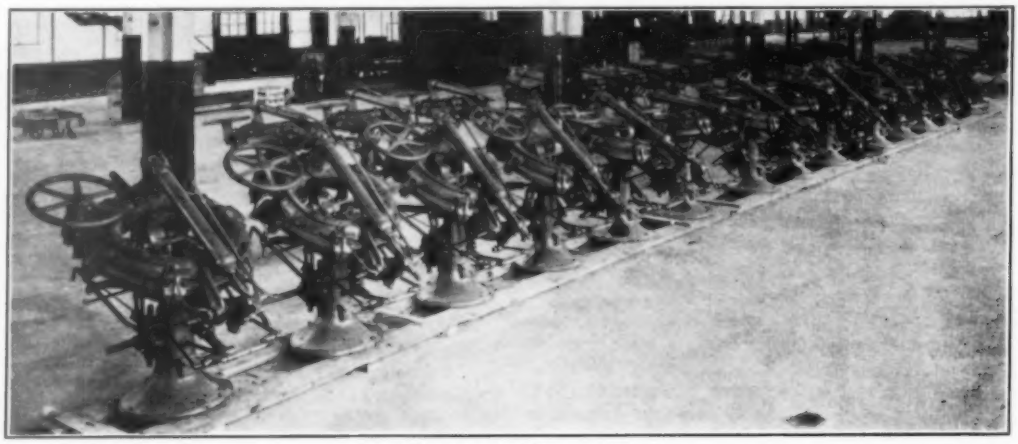
A unique type of inner tube press vulcanizer has recently been developed, and it is designed to produce circular tubes. The machine is wholly self-contained upon a single standard, the lid being hinged for quick movement and protected by safety devices against premature opening and accidental closing. A single turn of the wheel serves to lock or unlock the mold.

In operation, after a tube is formed it is placed in the mold, which is then closed, all the air removed, and steam for curing and internal pressure is automatically admitted, the opening and closing being regulated by means of a 3-way valve control. After vulcanization the mold is easily broken and the tube removed.

The capacity of the machine is four cured tubes an hour. A battery of machines can be operated by one man. The flexibility of this equipment and the process results in the production of tubes of one piece in a perfect circle and with valve cured in place. There is no waste stock, as no splice is necessary. The valve stem is in a positive uniform position and the tube is without wrinkles or leaks.—The Twemo Corporation, 250 West 57th street, New York, N. Y.

German Belting Press

A new type of construction for belting presses developed in Germany is of interest. The usual heavy top castings and supporting rods are dispensed with and in their place the framing comprises a series of heavy steel plates fastened together with supporting steel webs and angles. This construction is supported on a heavy cast base. A central rectangular area is removed from each vertical plate. In the passage thus formed through the series of plates the hydraulic mechanism and press plates are located. The belt stretching device is attached to the lower plate in order that the pull upon the belts may be exerted in such way as to keep them perfectly straight during vulcanization.—Hydraulik, G.M.B.H. Duisburg, Germany, Techno Service Corporation, 46 West 40th street, New York, N. Y.



Fairchild Tube Molding Machines

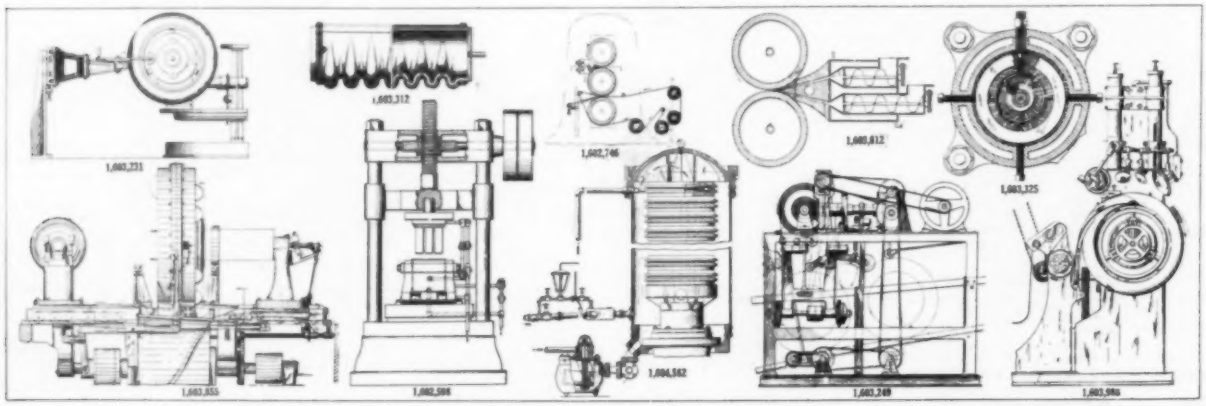
Machinery Patents

The United States

1,602,598. BATTERY BOX MOLD. This is designed for forming a multiple cell, one-piece battery box from any vulcanizable compound. The arrangement of the mold enables it to be readily opened for removal of the product and closed for molding another box.—George C. Stebbins, Ashtabula, Ohio.

1,602,746. CALENDER FOR TRIMMING SHEETS. Rubber-coated cord tire or other fabrics are calendered and the excess rubber trimmed away without waste of the fabric by means of a pair of chisel-like knives positioned one at each edge of the fabric strip and held with a yielding device in the angle between the calender rolls which apply the rubber sheet to the fabric.—James E. Bowen, Akron, assignor to The B. F. Goodrich Co., New York, N. Y.

1,603,231. TIRE STRIPPER. In the use of this device, the core carrying a tire casing is set in rotation upon a suitable support. A pair of adjustable tongs is then swung toward the tire and the loosening and stripping rollers at the extremity of the tongs. The inclination of these rollers enables them to pry between the beads of the tire and the core. The combined pulling and separating movement of the rollers completely separates



the tire from the core at all points.—Roy Broadbent, Hamilton, Ontario, Canada, assignor to The Firestone Tire & Rubber Co., Akron, Ohio.

1,603,249. MACHINE FOR CLEANING TIRE CORES. The core is received in a cradle support in which it is rotated by mechanism below, while cleaning brushes, automatically applied, are driven from above and remove all adhering material from the core.—William C. Stevens, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

1,603,312 INNER TUBE MAKING. A relatively straight hollow mandrel with a transversely corrugated or waved surface extending throughout its length is used as a form upon which to cure inner tubes. The corrugations converge as they approach the smooth surface. The concave portions of the corrugations have openings communicating with the interior of the mandrel for the purpose of exhausting the air between the rubber and the surface of the mandrel for drawing the rubber closely to it. This form of mandrel saves heater space compared to circular mandrels, and the inner tube when made endless by splicing obviates displacement of contour.—Richard S. Burdette, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,603,325. TUBE MACHINE SPIDER. The variations of stock pressure in each segmental inner zone of stock passing through the aperture between adjacent spider arms are compensated by overlaying upon adjacent inner zones, another zone of stock having complementary pressure variations. This is done by providing an outer series of apertures through the spider staggered or mismatched with the inner series of apertures.—Elias E. Davidson and Florenz P. Hartung, both of Akron, Ohio, assignors to The B. F. Goodrich Co., New York, N. Y.

1,603,812 and 1,603,813. MACHINE FOR STRIPED RUBBER SHEETING. Supplies of rubber of different color are fed through a channeled block into the bite of a pair of ordinary calender rolls. By the sheeting action of the latter the various colored rubbers issue from the calender as a striped sheet. A five-roll calender with 2 feeds will form a 2-ply sheet differently striped on each side if desired.—Merle C. Scrote, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,603,855; 1,603,856; 1,603,857; 1,603,858; 1,603,859; 1,603,860. CORD TIRE BUILDING.—This series of patents comprises mechanisms and methods for building tires of parallel cords extending completely around the circumference of the casing.—Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,603,988. TIRE BUILDING MACHINE. The special advantages claimed are that the tools employed are so supported that they can be applied quickly and accurately to the work with the desired pressure.—Merle C. Scrote, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,604,562. VULCANIZER. This apparatus permits uniform vulcanization throughout the article. It is adapted to apply substantially air-free steam at the same time to all parts of the articles or molds thus gaining the time ordinarily lost in bringing the temperature of entrapped air up to that of the steam.—Ernest Blaker, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,602,588 Rubber stopple cutting machine. Abraham Podel, assignor to Anchor Cap & Closure Corporation, both of Long Island City, New York.

1,603,142 Machine for making rubber bindings for floor coverings. Edward F. Murray, assignor to Knapp Rubber Binding Co., both of New York, N. Y.

1,603,357 Measuring dispensing device. Mark A. Replogle, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,603,991 Closure for conduits. Vernon L. Smithers, Lancaster, assignor to The Lancaster Tire & Rubber Co., Columbus, both in Ohio.

1,604,034 Tire mold. Wallace R. Gillam, Tallmadge, and Mark A. Replogle, Akron, assignors to Lambert Tire & Rubber Co., Barberton, all in Ohio.

1,604,222 Straightening and curving device. Arthur Evans, Milwaukee, Wisconsin, assignor to The Fisk Rubber Co., Chicopee Falls, Massachusetts.

1,604,234 Mold and article handling device. George J. Mead, Chicago, Illinois, assignor to The Fisk Rubber Co., Chicopee Falls, Massachusetts.

1,604,269 Packing and method of making. Clyde C. Farmer, Pittsburgh, assignor to The Westinghouse Air Brake Co., Wilmerding, both in Pennsylvania.

1,604,272 Method and apparatus for making sponge rubber articles. John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,604,273 Method for making endless bands. John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,604,274 Method and apparatus for making hollow rubber articles. John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,604,450. Tire constructing mold. Frederick A. Krusemark, Akron, assignor to Lambert Tire & Rubber Co., Barberton, both in Ohio.

1,604,451 Process of manufacturing pneumatic tires. Frederick Augustus Krusemark, Akron, assignor to Lambert Tire & Rubber Co., Barberton, both in Ohio.

1,604,526 Tube splicer. Percival A. McCandless, assignor to Dunlop Tire & Rubber Corporation, both in Buffalo, New York.

1,604,579 Tire repair vulcanizing apparatus. Arge Leo Jacobson, San Francisco, California.

1,605,235 Expansible core. Andrew Huetter, assignor to The Artyr Co., both of Dayton, Ohio.

1,605,445 Machine for manufacturing thin rubber articles. Fred L. Killian, Akron, Ohio.

1,605,683 Process for vulcanizing tires. Erwin E. A. G. Meyer and John H. Mulloy, assignors to Morgan & Wright, all of Detroit, Michigan.

1,606,270 Apparatus for and method of making rubber tubes. Herbert R. Stratford, Cleveland, Ohio.

1,606,271 Method of making curved rubber strips. Herbert R. Stratford, Cleveland, Ohio.

1,606,305 Intermittent feeding device for sheet, strip or strand material. Charles W. Leguillon, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,606,352 Locking mechanism for molds for tires, tubes and the like. Walter L. Fairchild, New York, N. Y.

1,606,695 Construction of cord tires. Edward J. Cole, Peekskill, New York.

The Dominion of Canada

265,507 Blank cutter. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of Ernest Leslie Patten, New Haven, Connecticut, U. S. A.

The United Kingdom

256,897 Bottle teat mold. C. J. Reilly, E. B. Norman and E. S. Butler, Cotton Exchange Building, New Orleans, Louisiana, U. S. A.

256,920* Vulcanizing molds. Soc. Des Procédés Fit, 26 Rue St. Jacques, Grenoble, Isere, France.

256,961* Vulcanizing mold. H. C. Lord, 361 West 5th street, Erie Pennsylvania, U. S. A.

257,105 Apparatus for placing tube valve patches. Dunlop Rubber Co., Ltd., 1, Albany street, Regent's Park, London, and F. H. Toop, Fort Dunlop, Erdington, Birmingham.

257,646 Vulcanizer. Dunlop Rubber Co., Ltd., 1, Albany street, Regent's Park, London, and J. Mitton, Fort Dunlop, Erdington, Birmingham.

Germany

435,179 May 27, 1923. Tapping knife. Jules Bosch, The Hague, Holland. Represented by: W. Massohn, Berlin S. W. 68.

435,289 December 8, 1925. Device for attaching rubber heels. Ernst Oswald Donner, Bernsdorferstrasse 7, Chemnitz.

435,321 September 20, 1925. Measuring instrument for continuously measuring the thickness of material from the calender rolls. The Dunlop Rubber Co., Ltd., London. Represented by Dr. R. Wirth, C. Weihe, Dr. H. Weil, M. Wirth of Frankfurt-am-Main, and T. R. Koehnhorn and E. Noll, Berlin S. W. 11.

435,350 March 27, 1925. Machine for covering rubber thread. Franz Döhler, Zeulenroda i. Thur.

Design

Germany

963,354 July 30, 1926. Device for stamping rubber heels. Julius Klostermeyer, Osterode a. H.

964,586 November 13, 1922. Calender for rubber or other plastic materials with recovery installation. Albert Boecler, Malmö, Sweden. Represented by: R. Specht, Hamburg.

964,648 September 3, 1926. Device for changing rubber heels. Hans Rieper, Neumünster, i. Holst.

Process Patents

The United States

1,602,986 Coated fabric and process of making. Jesse H. Mason, Roselle, assignor to Duratex Corporation, Newark, both in New Jersey.

1,603,465 Inflatable vulcanized article. Russell Hopkinson, Elmhurst, New York, assignor to The Goodyear's India Rubber Glove Manufacturing Co., Naugatuck, Connecticut.

1 603,812 Method for making striped rubber sheeting. Jacob Stein, New York, N. Y.

1,603,856 Method of forming tires. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,605,356 Making universal joints. August H. Leipert, assignor to International Motor Co., both in New York, N. Y.

1,605,453 Incorporating cords in rubber sheets. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,605,454 Bag straightening. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,606,220 Washer setting. Daniel E. Hennessy, Milwaukee, Wisconsin, assignor to The Fisk Rubber Co., Chicopee Falls, Massachusetts.

1,606,503 Cushion tire. Richard S. Burdette, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,606,513 Fibrous rubberized material. John T. Charleson, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,606,705 Manufacturing dental rubber plates. Christe Joannides, Constantinople, Turkey.

The Dominion of Canada

264,971 Manufacture of porous bodies, diaphragms, filters, etc. Meyer Wilderman, London, N. W. 3, England.

The United Kingdom

256,794 Attaching leather articles to leather or other surfaces. G. Lever, 1, Gower Road, and J. A. Redfern, 24, Kensington street, both in Hyde, Cheshire.

257,784 Rubber cushions. O. Krichbaum, 269 North Sandusky street, Delaware, Ohio, U. S. A.

Germany

435,060 October 2, 1924. Method of decorating dipped rubber goods. Firma Flügel & Polter, Leipzig-Plagwitz.

435,701 June 15, 1924. Apparatus for vulcanizing hollow bodies (i.e. rubber cover of a hollow roll), in a kettle containing vulcanizing fluid. Christian Hamilton Gray, London. Represented by: F. Meffert and Dr. L. Sell, Berlin S. W., 68.

* Not yet accepted.

The Editor's Book Table

Book Reviews

"HANDBOOK OF CHEMISTRY AND PHYSICS." A ready reference pocket book of chemical and physical data. Eleventh edition. By Charles D. Hodgman, M. S., and Norbert A. Lang, Ph.D., Chemical Rubber Publishing Co., Cleveland, Ohio. Flexible leather, 1011 pages 4 by 6½ inches, gilt edges. Indexed.

THIS extremely valuable laboratory handbook for the chemist and chemical engineer increases in size and value with each succeeding edition. Many of the tables have been compiled especially for this work from various authoritative sources. Gravimetric factors and other quantities dependent on the atomic weights have been fully revised. The same is true of all the other tables.

The scope of the book is indicated by the following partial list of topics taken from the table of contents: Mathematical Tables, General Chemical Tables, Properties of Matter, Heat, Hygrometric and Barometric Tables, Sound, Electricity and Magnetism, Light, Miscellaneous Tables, Definitions and Formulas, etc.

"CHEMICAL ENGINEERING CATALOG, 1926." Eleventh annual edition. Published by The Chemical Catalog Co., Inc., New York, N. Y. Cloth, illustrated, 1175 pages, 9 by 12 inches.

Enlarged and revised, this annual edition of a standard work of reference presents, as usual, data of great value both to the chemist and the manufacturer. The volume includes four sections: a classified index of equipment and materials, the equipment division, the chemicals and materials section, and the technical books section. An important feature is the enlarged classified directory, where the names of more than two thousand manufacturers are listed.

"EXPORT TRADE IN RUBBER FOOTWEAR." By E. G. Holt, chief of the Rubber Division, Department of Commerce, Washington, D. C. Paper, 31 pages, 6 by 9 inches.

Some interesting and valuable statistics appear in this publication, the compilations covering the export trade in rubber footwear by such manufacturing countries as the United States, the United Kingdom, Canada, Germany, France, Austria, and Sweden. In this export business Canada is said to have made more rapid gains than any other country, although the United States is maintaining a position of leadership in the quantity and value of its exports of rubber footwear and also of rubber heels and soles.

"FOREIGN GOVERNMENT PRICE FIXING OF OUR IMPORT RAW MATERIALS." By Everett G. Holt, chief of Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. Published by Government Printing Office. Is included in Annual Report of Secretary of Commerce. Paper, 53 pages, 6 by 9 inches.

The success, according to Mr. Holt, of America's rubber conservation policy during recent months shows what can be done in other raw material fields. In the article under consideration a detailed review of the course of the Stevenson restriction measure is preceded by a criticism of so-called "government controls," in regard to which Mr. Holt says:

"There is a world of difference in economic and international relations where industries, on one hand, acting under private initiative, restrict production to cure temporary gross over-production, and, on the other hand, where governments restrict production for the purpose of fixing unreasonable prices." The only real products of government controls, it is stated, with the exception of extravagant profits to a few producers and speculators, are decreased consumption, substitutions, stimulation to uneconomic production, great losses to industry and consumer, and international friction.

In opposing unreasonable prices such defensive measures are suggested as: conservation in the use of imported raw materials; stimulation of production in countries not parties to the control; synthetic production at home and the development of the country's own resources; and voluntary cooperation of American bankers to prevent the financing of government control with American capital against the American consumer.

"UNITED STATES GOVERNMENT MASTER SPECIFICATIONS FOR HOSE, OIL SUCTION AND DISCHARGE." Published by the Department of Commerce, Bureau of Standards, Washington, D. C. Paper, 7 by 10 inches.

This specification was officially promulgated by the Federal Specifications Board on September 1, 1923, for the use of the departments and independent establishments of the government in the purchase of hose, oil suction and discharge. It was revised May 22, 1926, becoming effective August 23, 1926.

"RUBBER PRODUCING COMPANIES—1926." Compiled by the Mincing Lane Tea and Rubber Shares Brokers' Association, Ltd., and published by *The Financial Times*. Cloth 683 pages, 5½ by 8½ inches.

This annual publication continues to present comprehensive and timely information regarding practically every British rubber company. The data cover each organization's directorate, capital, acreage, tenure, date of planting, purchase price, crop yields, forward sales, etc.

CRUDE RUBBER SYMPOSIUM PAPERS

The following papers presented before the Division of Rubber Chemistry at the 72nd Meeting of the American Chemical Society, Philadelphia, Pennsylvania, September 5 to 11, 1926, were printed in full in *Industrial & Engineering Chemistry*, November, 1926:

The Importance of Rubber in Modern Civilization.—Edwin E. Slosson.

Botanical and Chemical Developments in the Plantation Industry.—J. W. Bicknell.

Possibilities of Wild and Plantation Rubber Production in Tropical America and Africa.—H. N. Whitford.

Recent Developments in the Preparation of Plantation Rubber.—Henry P. Stevens.

The Botany and Cultural Problems of Guayule.—Wm. B. McCallum.

The Production of Guayule Rubber.—George H. Carnahan.

The Chemistry of Guayule.—David Spence.

Developments in the Netherlands Indies Rubber-Planting Industry.—O. de Vries.

X-Ray Contributions to the Analysis of the Structure of Rubber and Allied Materials.—George L. Clark.

Future Commercial Prospects for Synthetic Rubber.—William G. Geer.

Alternative Materials for Rubber-Principles of Tread Wear and Resistance to Abrasion.—Ellwood B. Spear.

Composition and Structure of Hevea Rubber.—R. P. Dinsmore.

Microcinematograms of Brownian Movement in Rubber Latex and of the Dissection of Single Latex Particles with the Micromanipulator.—Ernst A. Hauser.

The Direct Use of Rubber Latex, Especially Vulcanized Latex.—Philip Schidrowitz.

Chemical Research on Raw Rubber at the Netherland Government Rubber Institute.—A. van Rossem and P. Dekker.

Optimum Cure Criteria in Vulcanized Rubber.—W. B. Wiegand.

The Present and Future of Reclaimed Rubber.—H. A. Winkelmann.

Significance of the Resin of Hevea Rubber in Vulcanization and in the Aging of Raw Rubber.—G. S. Whitby and H. Greenberg.

New Trade Publications

"THE HYDRAULIC PRESS" IS THE TITLE OF A NEW SEMI-technical quarterly bulletin now being issued by The Hydraulic Press Manufacturing Co., Mount Gilead, Ohio, which specializes in equipment for the rubber industry. Later a series of articles will appear in this publication, dealing with some of the fundamental principles of hydraulic transmission of power.

"G-E MOTORIZED POWER—FITTED TO EVERY NEED, 1926." A well-illustrated bulletin prepared by the General Electric Co., Schenectady, New York, and intended to show some of the many opportunities for utilizing electric power.

"INDUSTRIAL FIRE PROTECTION." IN THIS ILLUSTRATED PAMPHLET the Lux system of extinguishing fires by means of using carbon dioxide is set forth by the Walter Kidde Co., Inc., 140 Cedar street, New York, N. Y.

"THE TAG 'CODEX' CONDENSED CATALOG OF INDUSTRIAL THERmometers." Published by the C. J. Tagliabue Manufacturing Co., 18 to 88 33rd street, Brooklyn, New York, and listing this organization's various types of automatic control equipment.

"FACTS AFFECTING THE IMPORTATION OF MECHANICAL RUBBER Goods Throughout the World," a publication of more than one hundred pages arranged by the Department of Commerce, includes valuable statistics regarding this leading division of the rubber industry.

"THE MERCHANTS' ASSOCIATION OF NEW YORK—YEAR BOOK, 1926" contains reports of the various activities of the organization during the year ended April 30, 1926. The names of the 6,908 members of the Association are listed alphabetically, as well as according to the different industries with which they are connected.

Abstracts of Recent Articles

ANNUAL REPORT OF HEADS OF DIVISIONS. These include reports on rubber research and investigation, pests and diseases, small rubber holdings, longevity of rubber, etc.—*Malayan Agricultural Journal*, June, 1926.

ARTIFICIAL AGING TESTS ON PLANTATION RUBBER. When vulcanized with sulphur only, unsmoked sheet rubber is superior to crêpe rubber in tensile strength, in latitude of vulcanization, and in aging properties; it is, however, less plastic and more variable in rate of vulcanization than crêpe rubber.—London Committee, Ceylon Rubber Research Scheme. (*Bulletin Imperial Institute*, 1926, 24, 209-219).

THE VULCANIZING AND MECHANICAL PROPERTIES OF WET BLOCKED CRÊPE AND WET ROLLED SHEET.—*Rubber Research Scheme* (Ceylon), Bulletin No. 40, Series 2, 1926.

A SYSTEMATIC METHOD FOR THE DETECTION OF THE PRINCIPAL ANIONS.—L. Ferandes and U. Gatti. English translation by Herbert P. Foran.—*Canadian Chemistry & Metallurgy*, October 1926, 259-261.

RUBBER COMPOUNDING AS AN AID TO CONSERVATION.—W. B. Wiegand, *Canadian Chemistry & Metallurgy*, October, 1926, 251-254. Graphs.

VARIATIONS OF PLASTICITY, NERVE, AND RATE OF VULCANIZATION OF RAW RUBBER. Nerve is regarded as representing the cohesion of the single rubber particles, while plasticity represents the resistance of adjacent particles to relative movement.—W. Greinert and J. Behre, *Kautschuk*, 1926, 207-209.

EUPHORBIA RESIN FROM LATEX. The Euphorbia tree growing wild in East Africa yields a latex containing 15 per cent rubber, 40 per cent resins, 42 per cent moisture and ash, impurities, etc. Tests on a small quantity of the extracted resin gave m. p. 100 degrees, acid value 2.3, saponification value 25.2. Its solubility in various solvents is given ranging from 25 per cent in acetone to 82 per cent in benzol. A preliminary experiment indicates it is satisfactory for tung oil varnishes.—H. A. Gardner, *Paint Manufacturers' Association of United States*, Circular No. 275, 71-74 (1926).

PROGRESS IN VULCANIZATION FROM 1910 TO THE PRESENT DAY. Brief review.—René L. Dupont, *Revue Général Matières Plastiques*, 2,372-6 (1926). French.

THERMODYNAMICS OF ELASTICITY AND THE SHELL THEORY OF CAOUTCHOUC. III.—Heinrich Feuchter. Serial, *Kautschuk*, October, 1926, 231-238. Diagram. German.

GAS BLACK MANUFACTURE. Description of the channel process of making gas or carbon black.—P. Schidrowits, *India Rubber Journal*, October 30, 815-816. Illustrated.

RUBBER CONVEYER BELTING. Description of construction, cure and testing.—Anonymous, *India Rubber Journal*, October 23, 1926, 775-777.

BUD GRAFTING OF RUBBER. Interview with H. W. R. Bertrand and C. E. A. Dias.—*India Rubber Journal*, October 23, 1926, 780-781.

RUBBER VALVE BALLS. Manufacturing methods.—Anonymous. *India Rubber Journal*, October 16, 1926, 735-736.

THE BUDDING OF RUBBER ON A COMMERCIAL SCALE.—R. A. Taylor, *Tropical Agriculturist*, August, 1926, 86-89.

REPORT OF THE RUBBER SPECIALIST, UNITED PLANTERS' ASSOCIATION, SOUTH INDIA, JULY, 1926. Synthetic urea as an ameliorant against secondary 'leaf fall.—H. Ashplant, *Planters' Chronicle*, September 18, 1926, 633-634.

CONNECTION BETWEEN THE CHEMICAL CONSTITUTION AND THE ACCELERATOR ACTION OF THE DIARYLTHIOUREAS AND DIARYLGUANIDINES. An extended investigation covering the preparation, potency and aging qualities of these substances. Read at a joint meeting of the Manchester Sections of the Society of Chemical Industry and Institution of the Rubber Industry, March 5, 1926, W. J. S. Naunton. *Journal Society Chemical Industry*, Nov. 5, 1926, 376 T—384 T. Tables and Graphs.

THEORY OF NEEDLE-SHAPED RUBBER MOLECULE. E. Lindmayer. *Gummi-Zeitung* 40, 2805-7.

ISOPRENE AND RUBBER—IX. The formation of Cyclo-rubber from hydro-halides. H. Staudinger and W. Widmer. *Helvetica Chemica Acta*. 9, 529-49 (1926).

ISOPRENE AND RUBBER—X. The behavior of rubber on being heated. H. Staudinger and W. Widmer. *Helvetica Chimica Acta*, 9, 549-57 (1926).

COLLODION SOLUTION FOR PAINTING MOLDS FOR GLOSSY AND NON-BLOOMING RUBBER PRODUCTS. Werner Esch. *Gummi-Zeitung*, 40, 2,649-50, 1926.

THE RUBBER INDUSTRY IN MINDANAO. Chemical and mechanical analyses of four rubber soils are given. F. G. Galang. *Philippine Agricultural Review*. 19, 3-47, 1926.

CHEMICAL ENGINEERING IN THE RUBBER INDUSTRY. Discussion of the value of chemical engineering developments in rubber technology. R. B. Stringfield. *Chemical and Metallurgical Engineering*, November, 1926, 672-3.

HEAT-RESISTING RUBBER VULCANIZATES. Dr. Werner Esch, *Gummi-Zeitung*, September 24, 1926, 2862-2864.

ON THE APPEARANCE OF INTERFERENCES IN STRETCHED RUBBER. Dr. St. Reiner, *Gummi-Zeitung*, October 15, 1926, 133-135.

STATIC DEFORMATION OF PNEUMATIC TIRES. Elastic Tires and Solid Tires. Researches of the Laboratory of the Societá Italiana Pirelli (headed by Dr. Raffaele Ariano). *Gummi-Zeitung*, October 15, 1926, 135-137. Illustrated.

DIXIE CLAY TO REINFORCE RUBBER VULCANIZATIONS. Dr. Werner Esch. *Gummi-Zeitung*, October 15, 1926, 139. Formulas.

ADSORPTION-DUSTING AGENT FOR RUBBER GOODS AND A NEW SULPHUR BLOOMING THEORY. Dr. Rudolf Ditmar. *Gummi-Zeitung*, October 29, 1926, 246-247.

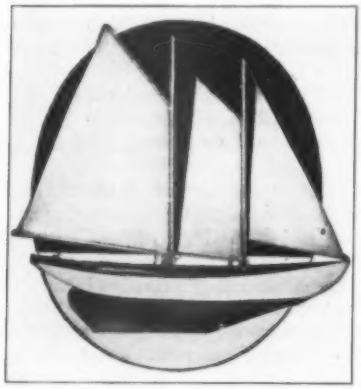
RESULTS OF A RUBBER PREPARATION INQUIRY IN THE DISTRICT OF THE MALANG EXPERIMENT STATION. Dr. C. Knaus, *Archief voor de Rubber-Cultuur*, October, 1926. 487-501.

REMARKS ON STUDIES ON THE PHYSICAL PROPERTIES OF RUBBER. A. van Rossem and H. van der Meyden. M. Le Blanc and M. Kröger. *Kolloid Zeitschrift*, October, 1926, 143-144.

New Goods and Specialties

Christmas Toys and Novelties of Rubber

INGENUITY of design and artistic and realistic use of colors combine to make of the rubber toys displayed for Christmas a lure from which the small boy or girl finds it hard to turn. Some of these toys are fashioned and colored so artfully that it is not until they are held in the hand that one becomes aware that the material from which they are made is rubber. Added to this beauty of manufacture, is the utilitarian feature of cleanliness, the toys so easily washed are sanitary and perfectly harmless in the hands of the smallest member of the family.



"Bowdoin" Sailboat

The I. B. Kleinert Rubber Co., 485 Fifth avenue, New York, N. Y., has presented many unusual toys of rubber manufacture, but surely none could prove more popular than the "Bowdoin" sailboat which is an exact replica of MacMillan's famous schooner which has made so many successful trips to the Arctic region. This is a true sailing model which sets exactly on its proper water line, fully rigged, and of the deep molded keel type. Under the water line the boat is painted a brilliant red, the hull white above the water line with an oak colored deck. The sails may be raised or lowered at will.

Cap

Doll's Cape

Midget Jiffy Pants

Nor have they forgotten the little girl and her doll family as the illustrations of the cape, cap and Jiffy pants prove. The small mother need not be ashamed of dollie's attire when arrayed in this outfit which will be equally appropriate for sun or showers. The capes may be had in printed cretonne designs or in an assortment of solid colors, and are made in four sizes, which assures a fit to any doll whether large or small. The caps are also made in assorted colors and can be procured in five different sizes. The midget jiffy pants are made in six sizes and the colors are white, natural and flesh, and may be washed in warm water.

From the same manufacturer comes the bubble set which consists of a child's apron, in one pocket of which is a kewpie doll, while the other pocket holds a cake of soap. The center holds a bubble pipe and in addition, the apron is covered with printing in four different colors, of Uncle Wiggily design. This style apron is made in white with red, green and blue trim around the apron and pockets. If preferred these bubble aprons may be obtained in plain colors as well as printed.

There is no dearth of novelties from the toy department of The Miller Rubber Co., Akron, Ohio, and this year's assortment is particularly popular with the confirmed adult joker as well as the more juvenile trickster. These articles also are in great demand as favors for parties, banquets, dinners, etc., adding a great deal to the merriment and fun of such occasions.

Hot Dog

It would be difficult to distinguish the hot dog from the real article, as it is life size, colored to conform to the coloring of a frankfurter and is made of sponge rubber.

Like the hot dog, the doughnut also is made of sponge rubber and looks as though it had just been lifted from the cooking pan. To carry out the illusion still further, a fine white powder is sprinkled all over it, making very improbable its detection by the unwary.

Football

Santa Claus

The company has made many additions to the line of inflatable toys carried, these toys being among the most popular manufactured. A novel idea is a balloon in the shape of a football which measures 8 by 5½ inches uninflated. This football is made of rubber sheet stock, the lacing and valve painted on, completing the resemblance to a miniature ball. Santa Claus too is represented in these toys, this representation showing the jolly old fellow in a beaming mood, which would add greatly to the color and gaiety of the Yuletide tree. Still another presentation in the inflatable toys is a fish whose aim is to give pleasure to the more peaceful of the young customers, while another style, the rattlesnake, will prove a delightful horror to the more turbulent. The toys are inflated only to the size of the objects which they represent.

Fish

Snake

Doughnut

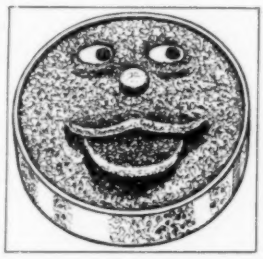
Germany, ever amongst the vanguard in the manufacture of toys, contributes many novelties to put in the kiddies' stockings, and no child could view without delight the saucy little rubber dolls with their detachable hats, a group of which are shown in the illustration "The Rising Generation." Nothing could surpass the nonchalent Aubrey, his baggy trousers of the latest cut, his hat set at any angle desired by his diminutive owner and towards whom the adoring eyes of the tennis miss are turned. The boy and girl scouts are in full Scout regalia, and the little golfer is the last word in correct golf attire. These dolls are non-injurious, the colors fast, and may be easily and effectively washed in warm soapy water. The manufacturer of the dolls is the Hanover Rubber Co. "Excelsior," Hanover-Limmer, Germany, whose representative in America is George Borgfeldt & Co., 111-119 East 16th street, New York, N. Y.

"The Rising Generation"

These manufacturers have also a large line of red rubber animals ranging in assortment from the mildest household pet to the wildest inmate of the zoo, which here consort in amicable agreement. Side by side with the tabby cat, lover of the peaceful fireside, stands the raging lion, ferocious roamer of the jungle, while the hippopotamus is partner to the gentle little sheep.

The red rubber line includes also a large collection of dolls, among them the quaint little boy and girl peasants of Germany, a round little gnome, the drummer boy, old Bre'r Rabbit, and Hans in his Sunday-go-to-meeting clothes.

Even such a useful, and often unattractive, article as a desk sponge for stamps may add its touch of color and brightness, besides proving an incentive to call the busy youngster from his play to write the duty letter, which may be sealed and stamped with this little device. From Belinde-Werke Aktiengesellschaft, Dovenfleth, 52, Hamburg, Germany, comes the idea of converting the sponge into a face from which the red tongue sticks out from the opened mouth. The eyes are colored blue and white, and the nose is outlined and raised. The sponge is small, about two and a half inches in diameter, and is enclosed in a glass container of the same dimensions.

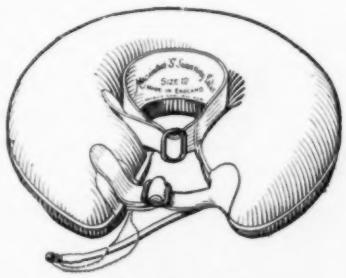


Stamp Sponge

Far off Hungary displays a wonderful collection of rubber animals, a product of the Dr. Dorogi & Co., Rubber Factory, of Budapest. The animals are made of calendered sheet rubber, cemented together, and provided with a valve through which they are inflated. The eyes, mouth and nose are painted in contrasting colors, and will withstand frequent scrubbings from the most violent disciple of hygienic laws. The elephant's trunk and tusks stand out when he is inflated, and his ears are cemented. He is colored grey with black, white and red trimmings. Krazy cat is black, his eyes formed of white rubber, and he has, in addition, a flesh colored strap about his neck. His tail stands up straight and wiggles when he is moved. The monkey stands on his four feet, and is a beautiful flesh color, with markings of black and red. The camel is not minus his two humps, and will easily carry a small doll on his back. His color is green, with eyes of yellow. All the animals will stand when inflated, and much fun may be had watching the grotesque positions they assume when the air is allowed to escape and they slowly wither and flatten.

Swimming Ring

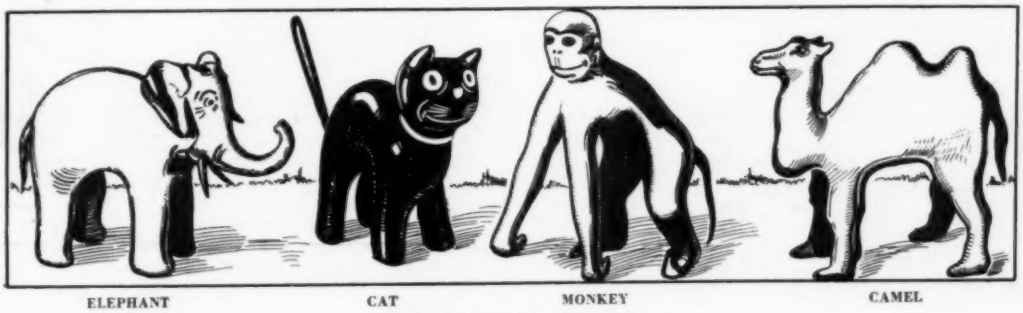
One of the cheapest and safest swimming instructors is the pictured "S" swimming ring which cannot become displaced and always keeps the head of the bather above water. It is worn round the neck, fitting comfortably and firmly, giving perfect freedom of motion to the wearer. The ring is quickly fastened with non-slip buckles, and has large air space, ebonite stopper and strengthened seams. The beginner easily and safely learns with it, while the experienced swimmer finds it a great convenience when he becomes tired and desires to rest.—Charles Macintosh & Co., Ltd., Cambridge street, Manchester, England.



"S" Swimming Ring

Weather Strip for Auto Trunk

A new feature introduced by the Dus-Pruf Metal Trunk Co., 414 Jefferson avenue, Detroit, Michigan, effectively eliminates the annoyance caused by dust, dirt and moisture. This innovation consists of a rubber weather strip which extends around three sides of the cover, forming protection for the contents of the trunk. The interior is large enough to hold two suitcases, the trunk is finished in black baked enamel which may be washed like the automobile.

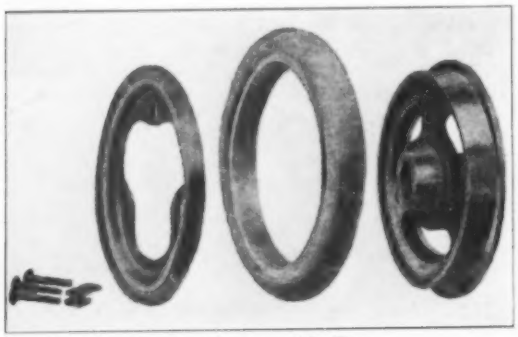


ELEPHANT CAT MONKEY CAMEL

Inflatable Rubber Animals

Demountable Dexine Tires

Dexine is the trademarked name of a composition of rubber and other ingredients. It is exceedingly tough and frictionless, capable of withstanding extreme temperature, and impervious to the deleterious action of acids, gases, ammonia, oils and greases. It is adaptable to essentially all of the mechanical purposes for which the best rubber compositions are used. One of these uses is illustrated here in the form of a demountable tire for truck wheels on trucks for various purposes such as those used in warehouses, railway stations, banks, hospitals, etc. The wheel is made in two



Dexine Demountable Tire

parts. Over one of these the molded Dexine tire is closely fitted and held in place by a metal flange fastened to the hub section by three through bolts.—Dexine, Ltd., Abbey Lane, Stratford, E. 15, London, England.

Adjustable Foot Rest

A foot rest which is adjustable to all size people and cars, providing unusual driving comfort and even feed of gas over all road conditions, this device fits right on top of the regular accelerator and requires no cutting or mutilating of floor boards. It makes possible an even pressure that means a smooth start and quicker pick-up without overfeeding, and insulates from the heat of the engine. The shoes and foot boards are protected by the foot rest, which also enables the driver to ride all day without the discomfort caused by foot burn or leg strain. Any desired position may be had by simply changing the two lower bolts. The foot rest is made of highly polished aluminum with rubber inserts.—Adams Manufacturing Co., Galesburg, Illinois.

Foot Rest with Rubber Inserts

Rubberized Electric Fan Cover

The Superior cover is made of extra quality, rubberized material, in all sizes to fit any make of fan. It is dust and dampproof, prolonging the life of the fan, which, if thoroughly cleaned and oiled before covering, will be ready for instant use without the usual repair bills after the season's storing. The fan presents a neat appearance, when covered, and may be left during the winter where it is used in the summer. The covers are made in light grey, black and maroon, the stock sizes being 6, 8, 12 and 16 inches, special sizes, however, will be made according to specifications.—Goldsmith-Astor Rubber Co., 1 Mercer street, New York, N. Y.

Radiator Hose

An unusually good service hose with heavy wall thickness, possessing the non-collapsible feature under strong pump suction. This hose is made up in 3-foot lengths, three plies of fabric inserted with a high grade inner tube especially compounded to resist the effects of heat, oil and anti-freeze compounds. It is finished with a red rubber cover, calibrated in one inch markings, Badger branding, with size indicated every three inches. Made in three-fourths to three inch sizes.—The Badger Rubber Works, Milwaukee, Wisconsin.

Badger Hose

Expanded Rubber Bushings

These rubber bushings are made for the spring ends and the motor supports of all motor cars and, according to the claims of the manufacturer, cost less and will outlast bronze or brass bushings. They not only help to eliminate squeaks and rattles, but also result in softer riding as the rubber absorbs part of the road vibration. The bushings are made by expanding rubber inside a steel sleeve, and they require no lubrication of any sort.

Powell Bushings

When used for engine supports, they insulate the vibration of the motor and prevent its transference to the car body.—Powell Rubber Bushing Co., 320 Catherine street, Utica, New York.

Rubber Soled Athletic Footwear

A full line of canvas rubber soled athletic footwear, to be known as Jiggers, has been announced by Endicott Johnson Corporation, Endicott, New York. These shoes are made of fine woven duck, with special counter and non-heat insole. The full double foxing is vulcanized to the crêpe rubber sole, the shoe strengthened where the wear is hardest by additional rubber. For outdoor or gymnasium wear, Jiggers will be found to be practical and serviceable.

Jigger Knockabout Shoes

The Obituary Record

Vice-President of American Oil & Supply Co.

On October 24 the death occurred of Edward B. Fulper, vice-president and one of the founders of the American Oil & Supply Co., Trenton, New Jersey, manufacturer of chemicals and compounds for the rubber trade. For a number of years Mr. Fulper had also carried on business under his own name, serving the rubber trade in all lines, including reclaimed and crude rubber. In the latter connection he had been especially associated with the Northwestern Rubber Co.

E. B. Fulper

Born in Flemington, New Jersey, sixty-six years ago, Mr. Fulper's early business associations were with the Standard Oil Co., acting as that company's agent in both Newark and later in Trenton. Resigning his duties with the organization in order to establish a rubber supply business, Mr. Fulper traded under his own name for more than twenty years, his company being merged on January 1, 1922, with the American Oil & Supply Co.

Since last June Mr. Fulper has been ailing, but the news of his death came as a shock to his many friends and associates in the rubber industry. Aside from his connection with the American Oil & Supply Co., he was also a director of other organizations, including the Trenton Trust Co. and Mercer Hospital. He was a member of the Trenton Country Club and the Trenton Club. He is survived by his widow, a nephew and a niece.

Selling Rubber Goods in Australia

The American tariff may discourage imports, but nevertheless a large quantity of British-made goods is sold in the United States at a profit. So, too, notwithstanding the handicaps of high customs duties and preferential tariff for the "mother country," Americans are exporting to Australia profitably and on a steadily increasing scale a good-sized volume of manufactured articles, rubber goods figuring well in the totals, according to the United States Commerce Reports.

In 1925, for instance, exports of pneumatic automobile casings were valued at $1,252,544, a gain of 29.2 per cent over 1924; inner tubes, $145,317, a 54.8 per cent gain; solid tires, $483,447, a 98.6 per cent gain; tire repair materials, $120,194, a 236.2 per cent gain; rubber footwear, $86,862, a 152 per cent gain; hose, $105,985, a 50.6 per cent gain; packing, $52,522, a 37.9 per cent gain. All told, American mechanicals scored a gain of about 22 per cent.

The value of American hard rubber goods exported in 1925 was $24,693 and other hard rubber goods $35,313, marking substantial advances in each case. Rubber sundries shipped in 1925 were worth $212,569, making a good increase; and the only items showing a falling off were water bottles and syringes. American exports of waterproof clothing fell off from $170,868 in 1924 to $139,396 in 1925.

Rubber belting, of which the United States supplies half of Australia's needs, also suffered a slight setback in 1925, sales totaling $111,936, as compared with $113,400 in 1924. Leather belting is still largely favored, despite the fact that rubber belting is largely preferred elsewhere for similar purposes. The advantages of the latter may, it is suggested, be pointed out in an advertising campaign, which might also extend to rubber heels now but little used, and to other rubber products such as footwear, of which latter one-half is locally manufactured.

Because of the under-development of railways, the market for automotive rubber goods is regarded as excellent. The high quality of American products has given them preference over many foreign makes. The island tire industry is strong, being aided with an ad valorem preferential and a general tariff, recently increased from 25 and 40 to 40 and 55 per cent, respectively, thus enabling Australian factories to supply 60 per cent of the pneumatic replacements. Some American tire makers having English works, although enjoying advantages similar to those of British manufacturers, are, it is said, considering the advisability of also setting up factories in Australia to make not only tires but mechanicals generally and to thus escape the local double tariff.

George M. Stadelman Memorial Unveiled

On the evening of October 30 a short service was held in the Goodyear auditorium, when a bronze tablet was unveiled in memory of George M. Stadelman, former president of the Goodyear Tire & Rubber Co., Akron, Ohio. Paul W. Litchfield, the present head of the organization, concluded the ceremony by accepting the tablet in behalf of the company, while he also briefly reviewed the late president's activities. The tablet was purchased through contributions from the company's many employes.

G. M. STADELMAN
IN MEMORIAM
A GREAT INDUSTRIAL LEADER AND A MODEL OF
CHRISTIAN GENTLEMAN; A MAN OF SIMPLE HABITS
AND HIGH IDEALS; EXPONENT OF THE VIRTUES OF
INDUSTRY, HONESTY, SINCERITY, COURTESY, FRANKNESS,
CHARITY, COURAGE; A MEMBER OF THE OFFICIAL FAMILY
OF THE GOODYEAR TIRE AND RUBBER COMPANY
FROM 1902 TO 1926 AND PRESIDENT OF THE
COMPANY FROM 1922 UNTIL HIS DEATH
THIS TABLET IS ERECTED IN AFFECTIONATE MEMORY
BY THE EMPLOYES OF THE COMPANY UNDER THE
AUSPICES OF THE GOODYEAR INDUSTRIAL ASSEMBLY
1877 1926

EXPORTS TO THE UNITED STATES FROM IQUITOS, PERU, OF crude rubber totaled in 1925, 289,961 kilos, shipments to other countries reaching 299,211 kilos. Corresponding exports of balata totaled for the United States 272,081 kilos, and to other countries 1,544,481 kilos.

JAPAN'S EXPORTS OF RUBBER TIRES DURING JULY OF THE PRESENT year reached a value of 200,000 yen, the August exports totaling 300,000 yen. In July the yen averaged $0.4707, the August value being $0.4780.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

NUMBER	INQUIRY
898	Source of supply for second grade atomizer bulbs.
899	Manufacturers of rubber sheeting.
900	Fabric pullers.
901	American manufacturers of packing.
902	Source of supply for sponge rubber mats.

Foreign Trade Information

For further information concerning the inquiries listed below, address United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Room 734, Custom House, New York, N. Y.

NUMBER	COUNTRY AND COMMODITY	PURCHASE OR AGENCY
22,595	Brazil. Automobile tires and tubes	Agency
22,613	Germany. Photographic and rubber chemicals	Agency
22,669	Italy. Chemicals for rubber goods	Purchase
22,685	Germany. Automobile and truck tires	Purchase
22,686	Uruguay. Rubber balloons and toys	Purchase
22,687	Norway. Rubber heels, dark brown and black, and composition soles	Purchase and agency
22,688	Norway. Rubber raincoats	Agency
22,744	Brazil. Rubber sundries	Agency
22,771	Austria. Rubber belting	Purchase
22,814	New Brunswick. Rubber novelties	Agency
22,844	Germany. Sanitary rubber goods	Purchase and agency
22,934	Esthonia. Elastic webbing	Agency
22,947	Australia. Elastic webbing	Agency
22,948	Brazil. Bathing caps; tennis, golf, and other rubber balls; and canvas rubber soled shoes	Agency
22,949	Netherlands. Elastic webbing	Agency
22,956	China. Mechanical rubber goods	Agency
22,975	Spain. Automobile tires	Agency
22,977	Chile. Automobile tires	Purchase and agency
22,978	Australia. Balloon tires for automobiles	Purchase or agency
22,979	Germany. Automobile tires and rubber novelties	Agency
22980	Latvia. Tires for automobiles, motorcycles and bicycles; rubber packings	Agency
22,981	Denmark. Ebonite battery boxes	Purchase

Foreign Trade Circulars

Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. The publications which give details of the rubber industry in some one country are marked with an asterisk.

NUMBER	SPECIAL CIRCULAR
1304	"Tire Exporters' Weekly News Letter."
*1308	"Crude Rubber Reexports from the United States, Month of September, 1926."
1309	"Crude Rubber News Letter."
1310	"Tire Exporters' Weekly News Letter."
1312	"Mechanical Rubber Goods Exporters' Monthly News Letter."
*1313	"Canadian Tire Exports During September, 1926."
*1314	"Canadian Tire Exports During First Nine Months of 1926."
*1316	"British Export Trade in Belting—1925."
1318	"Tire Exporters' Weekly News Letter."
*1321	"British Exports of Automobile Casings During September and First Nine Months of 1926."
1322	"Rubber Specialties News Letter."
*1324	"French Tire Exports During First Nine Months of 1926."
1326	"Tire Exporters' Weekly News Letter."

GOVERNMENT RUBBER STATISTICAL SERVICE

In the future the statistical services of the Rubber Division, Department of Commerce, will be placed on a subscription basis, effective with statements for the month of January, 1927, the annual subscription rate for these data being one dollar. There will be four statements issued during the year, the detailed information showing as formerly the destinations of each class of rubber goods exported to every foreign country. Sample monthly statements covering exports of some one class of rubber products will be freely furnished to any company not familiar with the department's statistical service. Inquiries should be addressed to E. G. Holt, Chief of Rubber Division, Department of Commerce, Washington, D. C.

Statistics Compiled from Questionnaire Covering the Third Quarter of 1926

RECLAIMED RUBBER	Long Tons: Inventory at End of Quarter	Production	Shipments	Consumption
Reclaimers solely (8)	1,657	14,179	14,992	5
Manufacturers who also reclaim (21)	7,568	25,841	8,152	17,923
Other manufacturers (68)	4,533	.....	.....	12,650
Totals	13,758	40,020	23,144	30,578

SCRAP RUBBER	Long Tons: Inventory at End of Quarter	Consumption in Manufacture Reclaimed	Due on Contract at End of Quarter
Reclaimers solely (8)	41,652	26,102	7,827
Manufacturers who also reclaim (20)	23,753	25,966	10,743
Other manufacturers (19)	1,503	.....	.....
Totals	66,908	52,068	18,570

Number of Tons of Crude Rubber Consumed in the Manufacture of Rubber Products and Total Sales Value of Shipments of Manufactured Rubber Products

PRODUCTS	Number of Tons of Crude Rubber Used	Total Sales Value of Shipments of Manufactured Rubber Products
Tires and Tire Sundries:		
Automobile and motor truck pneumatic casings	56,383	$210,867,000
Automobile and motor truck pneumatic tubes	13,275	39,492,000
Motorcycle tires (casings and tubes)	121	620,000
Bicycle tires (single tubes, casings and tubes)	129	714,000
All other pneumatic casings and tubes not elsewhere specified	...	98,000
Solid tires for motor vehicles	3,702	10,866,000
All other solid tires	69	281,000
Tire sundries and repair materials	1,463	6,379,000
Totals	75,142	$269,317,000
Other Rubber Products:		
Mechanical rubber goods	3,961	$22,204,000
Boots and shoes	2,895	30,678,000
Insulated wire and insulating compounds	690	8,789,000
Druggists' sundries, medical and surgical rubber goods	411	3,164,000
Waterproof cloth, clothing and rubber sheeting	621	6,407,000
Hard rubber goods	208	2,339,000
Heels and soles	722	4,717,000
Rubber flooring	216	1,130,000
Miscellaneous, not included in any of the above items	1,424	5,277,000
Totals	11,148	$84,705,000
Grand totals—all products	86,290	$354,022,000

Inventory of Crude Rubber in the United States and Afloat for United States Ports

ON HAND	Long Tons: Plantation	Pará	All Other	Totals
Manufacturers	41,695	1,484	1,942	45,121
Importers and dealers	12,458	532	772	13,762
Totals on hand	54,153	2,016	2,714	58,883
AFLOAT				
Manufacturers	17,940	338	21	18,299
Importers and dealers	20,445	863	208	21,516
Totals afloat	38,385	1,201	229	39,815

[1] Number of rubber manufacturers that reported data was 189; crude rubber importers and dealers, 44; reclaimers (solely), 8; total daily average number of employes on basis of third week of July, 1926, was 161,922.

It is estimated that the crude rubber consumption figures are 92 per cent of the total, and the crude rubber inventory 95 per cent of the total for the entire industry.

TIRE INVENTORY—PRODUCTION—DOMESTIC SHIPMENTS

	September, 1926: Inventory	Production	Total Shipments
High pressure cord casings	3,419,030	2,143,498	2,182,732
High pressure fabric casings	619,916	167,868	256,655
Balloon casings	2,949,531	1,968,229	2,090,799
Solid and cushion tires	165,082	42,572	54,625
High pressure inner tubes	7,165,399	3,736,578	3,692,619
Balloon inner tubes	4,318,512	1,956,234	2,128,619

COTTON AND RUBBER CONSUMPTION IN TIRES AND TUBES

	Pounds
Cotton fabric	15,909,615
Crude rubber	48,167,800

Rubber Association figures representing 75 per cent of the industry.

Financial and Corporate News

Financial Showing of Important Rubber Companies

IT is true that upward or downward movements of stocks may be caused by hearsay, opinions of authorities in financial circles, as well as official reports from the companies themselves. But in the long run, values are determined by the facts which sooner or later become available. Professor Ripley's criticism of large corporations for failure to give accurate information to stockholders cannot be said to apply to the rubber companies in a general sense. For instance, at the present time, practically all of the large rubber companies whose securities are listed in the stock markets, have issued reports showing results of their operations for the first half of 1926, and in several cases where the fiscal years do not correspond to the calendar year, further data is available.

It is very interesting at this time, therefore, to analyze the showings of some of the largest companies and speculate upon the final results of 1926 compared with 1925. The following table gives in composite form the 1925 showings of the largest rubber companies in point of sales in the United States:

Year Ends	Size	Company	Net Sales 1925	Net Profits
Jan. 1....	1.	United States Rubber Co....	$206,473,737	$17,309,870
Jan. 1....	2.	Goodyear Tire & Rubber Co..	205,999,829	21,005,898
Jan. 1....	3.	The B. F. Goodrich Rubber Co	136,239,526	12,744,447
Oct. 31....	4.	Firestone Tire & Rubber Co..	125,598,000	12,800,412
Oct. 31....	5.	Fisk Rubber Co.....	74,900,373	6,166,752
Mar. 31....	6.	Hood Rubber Co.....	38,592,571	2,910,151
Jan 1....	7.	Miller Rubber Co.....	35,000,000	3,533,201
Jan. 1....	8.	Kelly-Springfield Tire Co....	29,051,540	1,452,577
Nov. 30....	9.	General Tire & Rubber Co....	18,700,000	1,843,299
Jan. 1....	10.	Ajax Rubber Co.....	16,516,715	1,005,069
Jan. 1....	11.	Lee Tire & Rubber Co.....	12,742,585	300,209
Jan. 1....	12.	Seiberling Rubber Co.....	10,569,522	1,244,967
Jan. 1....	13.	Mason Tire & Rubber Co.....	9,436,567	576,585

The United States Rubber Co. reports sales for the six months ended June 30, as $100,113,986 which is not quite half of the total sales last year. Net profits were $4,915,668 which if continued on this basis for the last half would make the 1926 profits less than half those of 1925. But with the largest volume of footwear business coming in the last half of the year and the recent spurt in the tire business, sales for the year should exceed those of 1925 by a generous margin although the profits will be smaller owing to the crude rubber adjustment. It is not expected, however, that the total sales will reach those of 1919 and 1920 when the company did a business of $225,589,465 and $256,150,130 respectively.

The company has chosen to make its inventory adjustment at the end of the year so that this statement does not portray the havoc caused by the slump in crude rubber from $1.20 to 40 cent levels. A possible idea of the extent of the year-end adjustment may be gathered from the statement from Chairman Seger that the special $3,000,000 reserve set up to apply against this year's crude rubber receipts and the $11,426,000 credit of the plantations company on the books, a total of $14,426,000, will be more than ample for the purpose. This plantation profit which was the cause of the 1925 speculation in United States common will therefore, not be available for common dividends for this year, although the outlook for 1927 with stabilized crude rubber prices is very bright.

Goodyear Tire & Rubber Co. shows sales of the Akron company for the first six months to be $97,835,456 and for the combined companies (California, Canada, etc.) $116,788,924, indicating that if the operations in the last half continue at this rate, the annual total may exceed that of the United States Rubber Co. If this happens, it will be the first time that Goodyear has topped the list. Profits for the first six months on the Akron company are only $2,826,528, however, which is considerable shrinkage from the annual total of $21,005,898 last year, due primarily to the drop in crude rubber. A project which will improve the company's financial position materially, if it goes through, is the plan under consideration by the directors for readjusting the capital structure, replacing the existing first mortgage bonds, debentures, and prior preferred stock, all bearing 8 per cent interest or dividends, with a new issue of $50,000,000 or 5½ per cent first mortgage bonds and $14,000,000 of new 7 per cent prior preferred. This will enable the company to make a large saving on annual interest charges.

The B. F. Goodrich Rubber Co. is one of the most conservatively managed in the rubber group. Losses on raw material or inventory due to depreciation such as on crude rubber this year are taken immediately as a general rule. Sales for the first half of 1926 were $67,690,286 which if continued at this rate would make 1926 less than 1925; but Goodrich like the United States has a large footwear business which will increase the last half of the year to insure the total being ahead of 1925 and possibly to exceed the banner years of 1919 and 1920 when sales of $141,343,419 and $150,007,346 were rolled up. Similarly the small profits of $1,358,616 for the first half of 1926 reflect the crude rubber losses and should be exceeded many times over during the last half.

Firestone Tire & Rubber Co.'s fiscal year ends October 31, and although no figures have been given out yet, it is generally expected that the year's total will exceed that of 1925 when the company did the largest business in its history, $125,598,000. This prediction is made taking into consideration the expanding business of the Firestone Footwear Co., Hudson, Massachusetts.

Fisk Rubber Co. is another good barometer for 1926 as its fiscal year also ends October 31. Sales for three-quarters of the year have been given out as $49,917,000 and net profits $3,624,593, and President Dunn expects the annual sales to reach $70,000,000 which is slightly less than the 1925 total of $74,900,373. As the company's business is entirely centered on tires and tubes, this must be taken into consideration when comparing with other companies who have allied lines such as footwear and mechanicals to make up for the backward tire business of last spring. The remarkable thing about Fisk's showing this year is that the percentage of profit on sales is thus far greater than last year which is a tribute to the able management of the company.

Leaving the "Big Five" group, the next company in point of size is the Hood Rubber Co. It is a little early to get any data on Hood's sales and profits for 1926-27 as the fiscal year of this company ends on March 31 in common with most footwear companies. The company has just announced, however, in connection with its new financing that sales for the first five months of this year which began April 1 are ahead of the same period of last year. About two-thirds of the company's business is footwear and the remainder tires, all of which is sold to the retail trade. New financing of the company consists of $5,000,000 10 year 5½ per cent convertible gold notes, and the issuing of a new block of 50,000 shares of common stock. Previous to this issue, it was indicated that a 25 per cent stock dividend on the old common was contemplated, which was immediately reflected in the Boston stock market where Hood common is listed. On the day this announcement was made, more than a thousand shares of Hood were traded in the market in fifteen minutes at 65 to 65½ a share. The new common will be issued at $50 a share, will carry the $4 dividend now in force, and application has been made to list the issue on the New York stock exchange as well as Boston. One of the

strongest features of the Hood company is its policy in recent years of rounding out its line to include new products.

Miller Rubber Co. reports net profits of $744,101 for the six months ending June 30, compared with profit of $3,533,201 for the entire year of 1925. As annual sales are given only in round numbers, no data are available to compare the volume with that of a year ago. The plant has been in full operation practically all year, however, and there is every reason to suppose that this year's sales will equal if not exceed those of last.

No data are available at this time on Kelly-Springfield or General, although the latter's year ends November 30, and the annual report will, therefore, be available shortly after the first of the year.

Sales of the Ajax Rubber Co. for the first six months of the year were 12 per cent greater in dollar volume than for the same period of 1925. If the balance of the year's operations keep up at this rate, the sales of $16,516,715 for 1925 should be surpassed. Net profits were $335,872.65 which in view of the crude rubber situation compares very favorably with the annual total of $1,005,069 for 1925.

Lee Tire & Rubber Corp. reports a loss of $181,285 for the six-month period, compared to a profit of $158,059 for January-June 1925 and $300,209 for the whole year. Lee is a very conservatively managed company, and as undoubtedly all of the crude rubber losses have been written off in the first half, the second half and yearly operations will doubtless show on the right side of the ledger.

Seiberling Rubber Co. is making a big gain in sales for 1926. For the first six months of 1926 sales were $7,355,568 compared with $10,569,522 for the entire year of 1925. Net profit was smaller, however, being only $182,335 for January-June, 1926, compared with $1,244,967 for 1925. The company has recently closed new contracts for equipping the Chrysler 80, Packard 8, and Marmon, however, and with crude rubber losses written off, and full time operations in vogue, indications are that Seiberling will jump up a peg or two when the 1926 tallies are tabulated.

Akron Rubber Stock Quotations

Quotations of November 19, supplied by Otis & Co., Cleveland, Ohio.

COMPANY	Last Sale	Bid	Asked
Aetna com	16½	...	16½
Aetna pfd	93	...	...
Falls com	6½	...	9½
Falls pfd	18¾	...	18½
Faultless com	41	40¾	42
Firestone com	117	115	125
Firestone 1st pfd	101	100½	101½
Firestone 2nd pfd	98	97	98½
General com	150	149	175
General pfd	107½	103	...
Goodrich com	53	...	...
Goodrich pfd	97¼	...	...
Goodyear com. V. T. C	31½	29	33½
Goodyear pfd. V. T. C	110	...	...
Goodyear pr. pfd. V. T. C	107	...	...
India com	30	29¼	31¼
Miller com	34	...	...
Miller pfd	106½	100	101
Mohawk com	34½	...	30
Mohawk pfd	74	...	73½
Seiberling com	21	21	22
Seiberling pfd	95½	95	98½
Star com	11	...	10
Star pfd	35	...	...
Swinehart com	8½	...	...

New York Stock Exchange Quotations

November 22, 1926

	High	Low	Last
Ajax Rubber, com	7⅝	7⅛	7⅝
Fisk Rubber, com	16½	16½	16½
Goodrich, B. F., Co., com. (4)	46	45½	45⅞
Goodrich, B. F., Co., pfd. (7)	96½	96½	96½
Goodyear Tire & Rubber, pfd (7)	101⅛	99½	99½
Kelly-Springfield Tire, com	9¼	9¼	9¼
Lee Rubber & Tire, com	7	7	7
Norwalk Tire & Rubber, com	4¼	4¼	4¼
United States Rubber, com	59	57½	58⅛
United States Rubber, 1st pfd. (8)	106	105⅞	106

Dividends Declared

COMPANY	Stock	Rate	Payable	Stock of Record
Boston Woven Hose & Rubber Co.	Pfd.	$3.00	Dec. 15	Dec. 1
Boston Woven Hose & Rubber Co.	Com.	$1.50	Dec. 15	Dec. 1
Converse Rubber Shoe Co.	Com.	$1.00	Oct. 1	Sept. 15
Converse Rubber Shoe Co.	Pfd.	$1.75 q.	Dec. 1	Nov. 15
Falls Rubber Co.	Pfd.	$0.50 q.	Nov. 1	Oct. 26
Firestone Tire & Rubber Co.	7% Pfd.	$1.75 q.	Feb. 15	Feb. 1
Fisk Rubber	2nd Pfd.	$35.00 Acc.	Dec. 1	Nov. 15
Goodyear Tire & Rubber Co.	Pfd.	$1.75 q.	Jan. 1	Dec. 1
Goodyear Tire & Rubber Co.	Pr. Pfd.	2% q.	Jan. 1	Dec. 15
Hood Rubber Co.	Com.	$1.00 q.	Dec. 31	Dec. 20
Miller Rubber Co.	Pfd.	$2.00 q.	Dec. 1	Nov. 10

New Incorporations

ARCHIE POOLE, INC., September 24, 1926 (New York), capital $50,000. Incorporators: Goodwin Henry, 94 Richmond street; Drusilla W. Poole and Archibald O. Poole, 39 Alaska street, all of W. N. Brighton, New York. Principal office, Richmond, New York. To manufacture auto tires and accessories.

BAY STATE RUBBER CO., October 18, 1926 (Massachusetts), capital $5,000. Incorporators, officers and directors: Frank A. MacDonald, president, 25 Woodbury avenue, Lynn; Joseph A. Sweeny, treasurer, and Adelina F. Sweeny, clerk, both of 16 Mayfield street, Dorchester; Sarah E. Cowan, 30 Janvrin avenue, Revere; all of Massachusetts. Principal office, Boston, Massachusetts. To buy, sell and manufacture rubber, automobile supplies and equipment.

BRONX BLOWOUT PATCH CO., INC., October 9, 1926 (New York), capital $20,000. Incorporators: Arthur Schneider, 94 Williams avenue, Brooklyn, New York; Rose E. Sackstein, 523 Elton street, Brooklyn, New York; and Louise Adams, 191 Roff street, Stapleton, New York. Principal office, Bronx, New York. Rubber tires.

CENTRAL TIRE & REPAIR CO., November 3, 1926 (New Jersey), capital stock $125,000. Incorporators: Louis Greenberg, Isidore Kaplus and Minnie Greenberg, all of 231 Halsey street, Newark, New Jersey. Principal office, 231 Halsey street, Newark, New Jersey. To manufacture and deal in tires and other rubber goods.

THE GLOBE TIRE & RUBBER CO., INC., October 22, 1926 (New Jersey), capital 500 shares without par value. Incorporators: Howard K. Shaw, Louis Gerber and Dorothy Eisenbach, all of 137 E. State street, Trenton, New Jersey. Principal office, 712 American Mechanic Building, Trenton, New Jersey. To manufacture and deal in all kinds of crude rubber, gutta percha, chicle, gums, etc.

JERSEY TIRE EXCHANGE, INC., November 6, 1926 (New Jersey), capital stock $3,000, divided into 30 shares of the par value of $100 each. Incorporators: Ross B. Nelson, Alfred K. Moe, Joseph Vett, and Edward F. Lee, all of Elizabeth, New Jersey. Principal office, 154 Rahway avenue, Elizabeth, New Jersey. To erect a plant for the manufacture of automobile tires and tubes, rubber sleeves, patches, etc.

McLANE'S TIRE SHOP, INC., September 22, 1926 (Massachusetts), capital 150 shares of stock without par value. Incorporators, officers and directors: Nelson Pierce James, president, and Edwin I. James, treasurer, both of 169 Mt. Vernon street; and Edwina J. Newcomb, clerk, 131 Mt. Vernon street, all of Newtonville, Massachusetts. Principal office, Fall River, Massachusetts. To deal in automobile and truck tires and tubes and any articles consisting of rubber, fabric, cotton, linen and their compounds or substitutes.

MIDDLESEX TIRE EXCHANGE, INC., October 28, 1926 (New Jersey), capital stock $50,000, divided into 5,000 shares of the par value of $10 each. Incorporators: William J. Cohen and Elizabeth Cohen, both of 119 Madison avenue, Perth Amboy, New Jersey; Samuel Medinets and Dora Medinets, both of 101 Broadway, South Amboy, New Jersey. Principal office, 167 Smith street, Perth Amboy, New Jersey. To deal in tires, tubes, etc.

NATIONAL TIRE SERVICE, October 22, 1926 (Delaware), capital stock $100,000, par value $10. Incorporators: E. E. Craig, J. M. Townsend and P. A. Finnegan, all of Dover, Delaware. Principal office, Dover, Delaware. To manufacture, repair, buy, sell and deal in automobile tires of all kinds, tubes, and all goods consisting wholly or partly of rubber.

PERFECTION RUBBER GASKET CORPORATION, November 15, 1926 (New York), capital $5,000, par value $50. Incorporators: Matt Goldstein, 225 W. 34th street, New York City; Saul Bernstein, 1530 Plimpton avenue, Bronx, New York; Edna Lewis, 48 W. Polk avenue, Corona, Queens Borough, New York. Principal office, Manhattan, New York. Rubberized fabrics, etc.

R. S. W. RUBBER CORPORATION, September 18, 1926 (New York), capital $5,000. Incorporators: Murry Wiener, 1047 58th street, Brooklyn, New York; Bernard Rosen and Sidney Sicree, both of 883 E. 162d street, New York City. Principal office, New Rochelle, New York. To manufacture rubber heels.

THE RAJAH COMPANY, September 2, 1926 (New Jersey), capital stock $75,000, divided into 750 shares of the par value of $100 each. Incorporators, officers and directors: Robert A. Bell, president, 41 W. 92nd street, New York City; George Berthold, vice-president, 241 S. Burnett street, East Orange, New Jersey; Wilbur D. Washburn, treasurer, 40 Madison avenue, Montclair, New Jersey; Elizabeth G. Keeler, secretary, 6 Park avenue, Bloomfield, New Jersey. Principal office, 53 Locust avenue, Bloomfield, New Jersey. To manufacture and deal in automobile parts and supplies.

REZEENA RUBBER GOODS MANUFACTURING CO., INC., November 16, 1926 (New York), capital $10,000. Incorporators: Rubin Auerbach and Anna Auerbach, both of 1830 Anthony avenue, Bronx, New York; and Joseph A. Lima, 540 W. 183rd street, Bronx, New York. Principal office, Manhattan, New York. To manufacture rubber goods.

WELLESLEY SHOE CO., October 11, 1926 (Massachusetts), capital $25,000. Incorporators, officers and directors: Philip Clayman, president, 113 Henry avenue; Harry Stein, treasurer, 63 Ocean street; Joseph M. Couchberg, clerk, 107 Johnson street, all of Lynn, Massachusetts; and William Fieman, vice-president, 88 Winthrop street, Roxbury, Massachusetts. Principal office, Boston, Massachusetts. To manufacture and deal in boots, shoes, rubber and leather goods.

THE YOUGH RUBBER CO., October 25, 1926 (Delaware), capital, 1,000 shares without nominal or par value. Incorporators: S. L. Mackey, L. C. Christy and H. Kennedy, all of Wilmington, Delaware. Principal office, with the Corporation Service Company, 900 Market street, Wilmington, Delaware. To manufacture, produce, buy, sell, export and import rubber and all goods made of rubber.

News of the American Rubber Trade

East and South

Littlejohn & Co., Inc., 133 Front Street, New York, N. Y., well-known importer and dealer in crude rubber, is now importing all grades of Brazilian washed and air dried Pará rubbers, and is also offering to the trade other wild rubbers washed and air dried in this country.

Harry L. Fisher, vice chairman, Rubber Division, American Chemical Society, has resigned from the research staff of The B. F. Goodrich Co., Akron, Ohio, and joined that of the General Laboratories of the United States Rubber Co., New York, N. Y.

The Grasselli Chemical Co. of Tennessee, a subsidiary of the main organization whose offices are at 347 Madison avenue, New York, N. Y., is developing a zinc ore property in the vicinity of New Market, Tennessee, and intends to construct a mill at the new location during the early part of the coming year.

H. L. Arbogast of the chemical laboratory staff of the Kelly-Springfield Tire Co. for seven years, has joined the sales force of The R. T. Vanderbilt Co., New York, N. Y. Mr. Arbogast is a native of Akron, Ohio, and a graduate of the Akron University in chemistry.

Ira I. Slomon, 171 Thompson avenue, Long Island City, New York, specializing in the manufacture of rubber cements for shoe, leather, belting, raincoat and kindred trades, is now bringing out, under the name of Pliable Concrete, another type of cement, made with a rubber base. The new product, which is said to be acid, water, and weather proof, and eliminates all tacking and sewing, is adapted as a general adhesive for leather, wood, fabrics, etc.

The rubber reclaiming plant now being erected by the Endicott Johnson Corporation, Johnson City, New York, leather shoe manufacturers, is expected to be in full operation by the first of the coming year. Only one 10-ton unit is being installed at the present time, although the building will be large enough to provide easily for still greater production. The company desires to control the quality and supply of all basic materials used, and for the past two years has been manufacturing its own types of rubber heels and soles. The present production has reached 100,000 pairs of heels and 40,000 pairs of soles daily.

The Tucker Rubber Corporation, Buffalo, New York, announces that George B. Dickerson, formerly treasurer and sales manager of the Gutta Percha Co., of Brooklyn and New York, has been appointed manager of the New York office of the New York Rubber Co., Inc., and the Tucker Rubber Corporation, headquarters being at 350 Madison avenue. According to W. G. Andrews, chairman of the Tucker organization, this change represents part of the company's policy of gradually reviving the business of the old New York Rubber Co., and promoting sales of the mechanical rubber goods in which it formerly specialized.

The J. C. Haartz Co., New Haven, Connecticut, specializes in the rubberizing of all types of fabrics, and in the production of Duro Gloss automobile top fabrics. Last year the company furnished approximately 50 per cent of all the Ford requirements along this line, and the same percentage to the Fisher body organization, as well as supplying some of the needs of other automobile companies. F. N. Dodge is sales manager of the Haartz concern.

J. W. Whitehead, sales manager of The Norwalk Tire & Rubber Co., Inc., Norwalk, Connecticut, has returned from a business trip to the Pacific Coast. Executives of the Norwalk organization state that unit sales during the fiscal year ended September 30 were the largest in the company's history, and that as a result plans are being made to increase production in the coming year by 50 per cent.

Temporary headquarters for the New Haven territory have been recently established at 152 Temple street, New Haven, Connecticut, by the Link-Belt Co., 910 South Michigan avenue, Chicago, Illinois. R. H. Hagner, formerly with the Philadelphia office, is in charge. This division, the thirty-sixth to be established, will be devoted especially to sales of Link-Belt silent chain and roller chain.

The India Tire & Rubber Co., Akron, Ohio, established early in November a factory branch in Philadelphia, Pennsylvania, with J. Lincoln Chapin in charge. The new division will serve dealers in eastern Pennsylvania, Delaware, Maryland, the District of Columbia, Virginia, and sections of New Jersey and North Carolina.

The Firestone Tire & Rubber Co., Akron, Ohio, is erecting a new building to serve its branch organization at Charlotte, North Carolina, the structure to be three stories high, and with a floor space of 20,000 square feet. The company plans to have the building ready for occupancy about December 1.

The Cline Rubber Co., Charlotte, North Carolina, is a distributer of the tires and batteries manufactured by The Cooper Corporation, Cincinnati. T. H. Cline heads the new organization.

A southern unit for the manufacture of tire fabric will be established at Albany-Decatur, Alabama, by the Connecticut Mills Co., Danielson, Connecticut, which also maintains two other tire fabric factories at East Taunton and Fall River, Massachusetts. In equipping its southern plant the company will utilize 32,000 spindles from the Fall River factory, while the equivalent of twisting and weaving machinery for the establishment of a complete mill will be taken from the Danielson division.

Morris & Co., Inc., Groveville, New Jersey, is building a fabric mill at Morrilton, Arkansas, and intends to complete the new unit during the early part of February, 1927. One half of the output is to include hose and belting ducks and the balance to be tire fabrics, while the company also has under consideration the manufacture of special fabrics for the rubber trade. The new mill will be one of several located throughout the Southwest, plans for two others being at present under consideration. E. T. Gurry is general manager.

Rubber Trade Association Officers

At the annual meeting of the Rubber Trade Association of New York, Inc., held November 11, H. A. Astlett and E. Stevenson were reelected and H. Page elected, members of the Board of Directors. The full membership of the Board is as follows: H. A. Astlett, W. T. Baird, W. E. Bruyn, R. L. Chipman, D. D. Haldane, O. Meyer, H. Page, F. Pusinelli, E. Stevenson, W. H. Stiles, H. F. Tiedeman.

At a meeting of the Board of Directors immediately following the annual meeting, the following officers were elected to serve until November, 1927, or until their successors are chosen and assume office: President, F. Pusinelli; vice president, D. D. Haldane; treasurer, R. L. Chipman; secretary-manager, J. P. Sullivan.

Grasselli's Sales Offices

In order to facilitate the handling of accelerators and other products manufactured under the trade name of Grasselerator by the Grasselli Chemical Co., 347 Madison avenue, New York, N. Y., the organization has recently established the following sales offices: Boston, 80 Federal street; New Haven, 46 River street; Albany,

P. O. Box 919, (warehouse, Rensselaer); New York City, 347 Madison avenue; Philadelphia, 840 Public Ledger Building; Cleveland, 1400 Guardian Building; Cincinnati, Pearl street and Eggleston avenue; Birmingham, Brown Marx Building; Detroit, 1530 East Hancock avenue; Chicago, 2101 Canalport avenue; Milwaukee, Canal street and 16th street, Viaduct; St. Paul, 2303 Hampden avenue; St Louis, 901 Planters Building; New Orleans, Godchaux Building; The Grasselli Chemical Co., Ltd., Toronto, 514 Federal Building; The Pacific Coast Supply Co. (accelerators only), 244 California street, San Francisco.

New Jersey

The rubber industry in New Jersey is not as brisk as it was during the early fall season and there has been a decided drop in the output of some rubber lines. A decline in the automobile manufacturing industry has had its effect upon the Trenton manufacturers of tires, tubes and brake lining. One large tire manufacturing plant has been compelled to curtail operations to four days a week. The hard rubber branch of the industry also has shown a decrease during the month of November. Some of the plants, however, report the mechanical end of the business as being very fair, with belting, hose and packing in good demand.

The Rubber Manufacturers' Association of New Jersey will hold its first fall and winter meeting and luncheon at the Trenton Country Club on December 7.

The Thermoid Rubber Co., Trenton, New Jersey, announces that brake lining showed a little less production during November than in October. This was due to a decline in the automotive industry, but the company has good prospects for December and the other winter months. The production of mechanical goods continues very satisfactorily.

The Pierce-Roberts Rubber Co., Trenton, New Jersey, is operating two shifts and has orders that will keep the plant busy during the winter. The company has been operating actively since the new plant was erected.

The Ajax Rubber Co., Trenton, New Jersey, is operating four days a week, a condition not unusual this time of the year. William W. McMahan, general manager and vice president, decided to run the plant four days a week and give all hands employment, rather than to lay off some tire makers and operate six days a week. The management believes that conditions will improve after the first of the year.

The Luzerne Rubber Co., Trenton, New Jersey, reports that business dropped off a little during November.

The DeLaski & Thropp Circular Woven Tire Co., Trenton, New Jersey, has filed a certificate with the Secretary of State increasing its capital stock from $10,000 to $500,000. The entire issue will be in common stock.

Whitehead Brothers Rubber Co., Trenton, New Jersey, reports business as being very good in the belting, packing and hose departments with sufficient orders to keep busy all winter. William A. Howell, superintendent, recently celebrated his birthday by entertaining friends at his home. Mr. Howell, who is known as Uncle Billy, has been connected with the Whitehead concern for the past 47 years.

The machinery of the Trent Rubber Co., Trenton, New Jersey, was recently sold at public auction to the Mechanics National Bank, Trenton. The plant and machinery will now be sold by the bank.

Vice-Chancellor Church has issued an order directing the No-Tax Rubber Sole Corp., 769 Stuyvesant avenue, Irvington, New Jersey, to show cause why a receiver should not be appointed to liquidate its effects, as insolvency is alleged. The plant closed several weeks ago.

Raritan Tires, Inc., New Brunswick, New Jersey, makers of solid truck tires, is operating on a twenty-four hour schedule. John J. Burke is president; Alfred Foster, treasurer; Maxwell M. Kahn, general factory manager, and Gottfried Hennig, factory superintendent.

An automobile tire with special protection to prevent the inner tube from being punctured has been invented by Gustav Degenring, of Elizabeth, New Jersey. The patent has been assigned to the Northeastern Rubber Co., Elizabeth, New Jersey.

The Hatfield Rubber Works, Inc., has begun the erection of a plant in Hillside, New Jersey, which will be ready in about five months to manufacture insulation, particularly for large cables. The company has a large plant at Hackettstown. Andrew L. Hatfield is president.

De Mattia Brothers Build Plant Addition

De Mattia Brothers, Inc., Clifton, New Jersey, manufacturers of tire building machinery, are beginning operations in their new foundry addition, a two-story brick and concrete structure, measuring 96 by 240 feet. The building is equipped with modern machinery, while facilities for the comfort of the employes have been carefully considered. Plans for still further expansion will probably include the erection of two more large buildings, one of them to be used as an assembling plant. When the plans are completed, it will be possible to assemble the machinery and load it in the building directly in freight cars.

Beginning in a small way in 1909, the De Mattia organization has continued to prosper, while several plant enlargements have been necessary since the establishment of the company. Another shop is also being maintained in Garfield, New Jersey, this being part of the original establishment. Executives include: Peter De Mattia, president; Barthold De Mattia, vice-president; and M. A. Pearson, secretary.

Cooper Hewitt Enlarges Plant

During the fourteen years of its operations in Hoboken, New Jersey, the Cooper Hewitt Co., specializing in industrial illumination, has found it necessary to several times enlarge its plant, particularly after the General Electric Co. had acquired the stock

of the organization. Developments at the present call for a new building 100 by 430 feet and six stories in height, and the first unit, measuring 100 by 200 feet, will be begun at once. In this new construction will be housed the company's laboratories, the general offices, and some of the sales and shipping departments.

Massachusetts

The threshold of winter finds the Bay State rubber trade maintaining production at a high rate and shipping finished merchandise to consuming markets on an even schedule. While the cut in tire prices of November 15 is not looked upon with favor by producers of casings here, all of the local plants are running a good ticket for this season of year, and it is hoped that the additional business stimulated by the cut will result in still further increases in production which in turn will help absorb the loss in selling prices. New low prices on tire fabric and the recent sag in crude rubber will also help as soon as the plants get the benefit of them, probably after the first of the year.

Footwear production and demand continue to be the high spots in the local situation. The Midwest has already had cold weather and snow and shipments to that region are being speeded up as much as possible. The market conditions in the East are healthy as dealers' stocks are low, and an early snow storm will mean an inevitable shortage on popular numbers such as automatic fastener gaiters. Practically all mills are behind schedule on these. Part of the dealers' reluctance to stock up has been the expectation of lower prices January 1 in view of lower rubber and cotton markets. The color trend is in evidence more than ever and it is expected that the 1927-1928 line which goes to the trade January 1 will carry a range of colored fabrics never before seen in rubber footwear.

The mechanical goods manufacturers are just as busy as the footwear mills. The Boston Woven Hose & Rubber Co., Cambridge, Massachusetts, is operating at capacity and reports exceptional business on all its many lines. Proofers are also enjoying good business. Reclaimed output is steady, and indications are that manufacturers are going to standardize on present compounds as regards reclaim content, regardless of crude rubber fluctuations downward which can at best be looked upon as temporary.

Raincoat demand has been surprisingly brisk, and many fancy colored effects have proved a stimulus to it. Meade Rubber Co., Stoughton, American Rubber Co., Cambridge, Cambridge Rubber Co., Cambridge, Clifton Manufacturing Co., Jamaica Plain, and Louis Fine Rubber Co., Malden, are among the Massachusetts companies enjoying good business in this line.

Heel and sole factories are approaching the quiet season but demand has held up surprisingly well. Cobblers' heels have had a good run this summer, and sole demand from shoe manufacturers on misses' and children's patterns has been in excess of capacity at times.

The plant of the Salmon Falls Manufacturing Co., Salmon Falls, New Hampshire, makers of tire fabrics, will be closed early in December unless it is sold as to a going concern before that time. The orders are nearly filled and the work of storing machinery will start soon.

Dr. Ellwood B. Spear of the Thermatomic Carbon Co., addressed the Northeastern Section of the American Chemical Society on "Carbon and its Function in Rubber Compounds" at the Boston Architectural Club on November 12.

The Lubron Co., Everett, Massachusetts, manufacturers of rubber bands and "Knowlton" and "Lubron" packings, report a brisk demand for their products. De Bert Wakelee is treasurer.

Stedman Products Co., Braintree, Massachusetts, is enjoying good business in both the tiling and reclaiming divisions. Recent installations of the company's tiling have been at the new Hotel Statler, now being erected at Park Square, Boston, and the Mt. Sinai Hospital now under construction at Cleveland, Ohio.

Stickney and Tirrell, importers and manufacturers of English cliffstone, report record operations at their local plants in Chelsea, and East Boston, Massachusetts. Deliveries to local factories are made by truck and by carload freight to more distant points.

Edward T. Richardson will continue as divisional sales manager to cover the New England territory for the Dunlop Tire & Rubber Corporation, he having served in this capacity for the past three years.

H. T. Dunn, president of the Fisk Rubber Co., Chicopee Falls, Massachusetts, left recently for a five to six weeks field trip in which he will investigate market conditions in the South, Midwest, and on the Pacific Coast.

The Alhambra Rubber Co., Inc., Milford, Massachusetts, specializing in the production of raincoats, is now in its new and well-equipped factory, and with its present facilities will be able to do four times as much business as formerly. Arthur Webb is president and Fred W. Fitzsimmons is treasurer.

B. F. Chamberlin, formerly associated with the Walpole Rubber Co., and later with the United States Rubber Co., is now a member of the staff of the Alfred Hale Rubber Co., Atlantic, Massachusetts, manufacturer of Rajah crêpe rubber soles and Halesole composition.

Bernard A. Young, formerly with the Panco Rubber Co., has been appointed New England sales representative of the Lima Cord Sole & Heel Co., Lima, Ohio, makers of the "Gro" Cord soles and heels.

N. E. Purchasing Agents' Convention

The New England Purchasing Agents Association held its district convention at the Hotel Bellevue, Boston, Massachusetts, November 8 and 9, with an attendance of approximately 175 purchasing agents from this district. The rubber manufacturers' representatives were interested listeners to the two papers read by members of their industry, one by Ralph D. Berry, purchasing agent of the Davol Rubber Co., on "Buying at the Right Price" and the other by Charles L. Sheldon of the Hood Rubber Co. on "Paper Problems of the Purchasing Agent." The following rubber purchasing agents are members of the association: R. D. Berry, Davol Rubber Co.; E. N. Bowry, Simplex Wire & Cable Co.; H. E. Carson, Hood Rubber Co.; J. A. Gibson, Simplex Wire & Cable Co.; C. A. Goodnoh, Clifton Manufacturing Co.; R. C. Kelley, Converse Rubber Shoe Co.; F. G. Kennedy, Simplex Wire & Cable Co.; W. W. Murphy, American Rubber Co.; W. Robbie, Cambridge Rubber Co.; F. H. Romkey, American Rubber Co.; C. L. Sheldon and R. B. Woodbury of the Hood Rubber Co.

Converse Tire & Rubber Company of Malden

The Converse Tire & Rubber Company of Malden has been organized under the laws of Massachusetts by interests associated with the Converse Rubber Shoe Co., to manufacture and deal in automobile tires and do a general rubber business.

The capital of the new company consists of $1,000,000 8 per cent non-cumulative preferred stock, $50 par, $37,500 founders' stock, $5 par, and $75,000 common stock, $5 par. The preferred stock is redeemable in whole or in part at $55 a share. The common stock is non-voting but otherwise has equal powers with the founders' stock.

The officers and directors of the new company are: president and treasurer, Hugh Bullock, Andover, Massachusetts; clerk, Francis H. Caskin, Danvers, Massachusetts; directors: Hugh Bullock and Marquis M. Converse, Andover, Massachusetts; John K. Converse, Winchester, Massachusetts; William L. Burgess, Boston, Massachusetts; A. Hellman, New York, N. Y.; D. Stearn, Paterson, New Jersey; and C. Egolf, Cincinnati, Ohio.

Ohio

Indications are that Ohio rubber factories on the whole will do a satisfactory volume of business in the last quarter of the year. The lower volume of tire sales will be balanced in part by increased rubber footwear business. Sales of mechanical rubber goods lines and druggists' sundries are holding up well.

After falling to the lowest point of the year during November, automobile tire production is slowly increasing in the Akron district, under the stimulus of spring dating solicitation and the lower price scale now in effect. A good response from dealers to the new dating terms is reported by sales managers of the tire companies, and a large volume of orders is being received from all over the country.

Shipments of tires and tubes to automobile manufacturers for original equipment showed a further decline in November, and probably will continue light during December and January, owing to the seasonal slackness existing in the automotive industry. Most car manufacturers in Ohio and other centers are at present working on four or five day a week schedules.

Owing to adverse weather conditions this fall, which resulted in a general decline in mail order business, Sears Roebuck, Montgomery Ward and other mail order houses have been taking a smaller amount of tires from the factories. Ohio rubber factories produce from 6,000 to 8,000 tires a day as a rule for the big mail order concerns, which sell them under their own trade names.

Heavy snowfall and blizzards in the Midwest during the latter part of November accelerated sales of rubber footwear, according to Goodrich officials. Early fall demand for the Goodrich Zipper boot indicates that the boot is more popular this year than ever before. Production is on a full time basis in the Goodrich footwear departments and at the Firestone footwear factory in Massachusetts.

More than 250 salesmen of the Mason Tire & Rubber Co. attended the national sales conference during the week of November 8 in the Hollenden Hotel, Cleveland, Ohio. Previous conventions have been held in Kent, Ohio, where the factories are located, but the organization has grown too large for the accommodations there, according to officials.

The Firestone Steel Products Co., Akron, Ohio, subsidiary of the Firestone Tire & Rubber Co., has been favored in decisions of United States District court judges in two patent suits involving devices on automobile tire rims. Patent No. 1,031 of Percy B. Bosworth, assigned to Firestone in 1912, and covering a split locking rim for holding in place the removable tire flange, was held by Judge D. C. Westenhaver to be valid and infringed. Defendants were the Hydraulic Steel Co. and the Cleveland Welding & Manufacturing Co., whom Firestone was suing for infringement.

Three new gas cells for the United States navy airship Los Angeles were recently completed at the Akron plant of the Goodyear Tire & Rubber Co. The largest cell will hold nearly 300,000 cubic feet of helium, the other will have a capacity of more than 240,000 cubic feet, while the smallest contains about 50,000 cubic feet of the lifting gas. Approximately 4,000 square yards of fabric were used in making the largest cells.

More than 400 salesmen and dealers from the Chicago district attended the second of a series of sales conferences held in Akron, Ohio, by the General Tire & Rubber Co. During the next few weeks similar conferences are to be held in Kansas City and San Francisco.

Although the youngest of the Akron tire companies, the Seiberling Rubber Co. has grown rapidly, and now ranks among the leaders in the industry. Sales for 1926 will surpass the goal of $12,000,000 set for this year's business. Completion within the next few months of a new factory addition, 80 by 280 feet, now under construction, will increase plant capacity nearly 50 per cent. A production of 6,000 tires daily is expected by May 1. Besides its large tire business, Seiberling controls the Kemitex Products Co., which manufactures rubberized fabrics, and the Portage Rubber Co. is also incorporated in the company.

A. G. Partridge, former sales manager of the Firestone Tire & Rubber Co., has joined the sales organization of the Goodyear Tire & Rubber Co. Entering the rubber industry with the old Diamond Rubber Co. in 1899, Partridge joined Firestone in 1905, when that company first started to manufacture rubber tires. After leaving Firestone in 1921, he spent some time with the Goodrich company.

President J. M. Alderfer states that sales of the India Tire & Rubber Co., Akron, Ohio, for the period ended October 31 have exceeded those of any previous entire year. "Our plant has been running at capacity, and we find it necessary to build an addition," he says. "Work has been started on a new boiler plant, and the construction of a new three story factory unit will start as soon as this is completed."

Robert Graham, formerly with the Falls Rubber Co., Cuyahoga Falls, Ohio, is now associated with the Star Rubber Co., Akron, Ohio.

John W. Thomas, vice president of the Firestone Tire & Rubber Co., Akron, Ohio, has been elected chairman of the board of Akron University.

Several concerns, including Goodyear, Firestone, Seiberling and India, recently have announced plans for additions ranging in cost from $300,000 to $1,000,000. Goodyear is preparing to increase its plant capacity so that 10,000 more tires a day may be turned out in Akron if the demand requires it. Firestone is preparing to double its output of small size tires, and Seiberling and India expect to increase their plant capacities by 50 per cent.

The price reduction on tires and tubes of 10 to 20 per cent, which was initiated November 15 by the Firestone Tire & Rubber Co., Akron, Ohio, was no surprise as it had been anticipated for a week or more. Manufacturers were planning a downward readjustment through trade discounts to dealers, but this was abandoned in favor of a general cut. The present level of tire prices is about the lowest in the history of the industry and represents the cancellation of practically all the increases put into effect last year. Profits of the rubber companies will not approach those of last year, owing to a shrinkage in crude rubber inventories and the lower tire price scale, but the well managed concerns will show fair earnings, and better conditions are expected next year.

The products of Akron's 172 industries, of which the bulk are rubber factories, are valued at $631,465,900, compared with $536,969,743 the previous year. Although the number of employes decreased from 62,466 to 60,596, the total payroll was $98,228,840, against $95,008,930. Current tire production in the district is around 115,000 tires a day, something like 10,000 less than a month ago. This is nothing more than a normal seasonal recession, however, and from now on operations should be on the increase.

A new branch building on East Rich street, Columbus, Ohio, has just been opened by the Lee Tire & Rubber Co., Conshohocken, Pennsylvania, for the distribution of tires in Ohio, Kentucky, and portions of Indiana, West Virginia and Virginia. H. A. Rogers is district manager in charge.

After more than eight years of experimental work, the Maumee Valley Rubber Co., Toledo, Ohio, has started the manufacture of rubber tile. One of the bases of the tile is reclaimed rubber. E. L. McKimm is the inventor.

In order to increase its production of hard and soft rubber goods, The Inland Manufacturing Co., Dayton, Ohio, has begun the construction of an additional building, the total cost of which, including equipment, will be approximately $250,000. The new addition will represent about 50,000 more square feet of floor

space, and plans call for its completion in January. W. S. Whitaker is president and general manager.

The Stardant Novelty Co., manufacturer of druggists' sundries and toy balloons, will begin operations in its new plant early in December. Construction work has been practically completed. The new building, located on Springfield road, in Kenmore, Ohio, replaces the old factory on Kenmore boulevard, which was destroyed by fire last summer.

The Akron Standard Mold Co., Akron, Ohio, has completed a motion picture of its factory equipment in actual operation. According to A. J. Fleiter, vice-president and general manager, the film has been well received and should prove of especial interest to the tire manufacturer. W. W. Sigler of the sales staff spent several days recently in Cleveland attending the Foreign Trade Conference held in the Chamber of Commerce Building.

The Bridgwater Machine Co., Akron, Ohio, specializing in rubber manufacturing equipment, finds that there is a good demand for India cores and chucks for the new 18 and 19-inch diameter tires, such cores and chucks representing some of the leading Bridgwater products.

Sales by the India Tire & Rubber Co., Akron, Ohio, during the first ten months of 1926 have been greater than for any previous whole year in the company's history. Capacity production has been maintained for the past few months, while plant enlargement is under consideration; the boiler house is to be extended, a three-story addition constructed, giving 20,000 square feet more of floor space. Tire sales during July and August were double those of the corresponding months of last year.

In order to increase its manufacturing facilities, the National-Standard Co., Niles, Michigan, is building an addition to its Akron, Ohio, factory. The organization, which manufactures tire bead cables, tapes for tire beads, etc., also maintains a Canadian plant at Guelph, Ontario.

The Lambert Tire & Rubber Co., Akron, Ohio, announces the completed installation of pneumatic tire making machinery at its Barberton factory where all types of tires will in the future be made. The company formerly specialized in the production of "Trublpruf" cushion tires.

The Akron Rubber Reclaiming Co., Barberton, Ohio, is now operating at full capacity, with a three-shift schedule, while a new tube reclaim, called Summit, has been recently added to the company's line. H. J. Putnam, formerly connected with the Goodyear organization, is now a member of the sales force.

The Cleveland Equipment & Engineering Co., Swetland Building, Cleveland, Ohio, specializing in the purchase and sale of rubber plant machinery, guarantees that money will be refunded if goods bought through the Cleveland company are other than represented.

The Erie Rubber Corporation, Sandusky, Ohio, manufactures Gold Seal high pressure and balloon tires, as well as Red Seal casings. Additional equipment has been recently installed, while the present factory output includes 1,000 casings and 1,200 tubes daily. Joseph M. Dine is sales manager.

The Lee Tire & Rubber Co., Conshohocken, Pennsylvania, has recently opened a new distributing branch at 117 Rich street, Columbus, Ohio.

The Triangle Tire & Rubber Co., Canton, Ohio, carries warehouse stocks in the following cities: Cincinnati, Ohio; Indianapolis, Indiana; Des Moines, Iowa; Kansas City, Missouri; Oklahoma City, Oklahoma; San Francisco, California, and Atlanta, Georgia.

The Hydraulic Press Manufacturing Co., Mount Gilead, Ohio, has established sales and engineering departments in the City National Bank Building, 20 East Broad street, Columbus, Ohio, in charge of Paul C. Pocock, who has had wide experience as a hydraulic engineer.

The Central Tire Store, 499 East Main street, Columbus, Ohio, has recently opened two branches under the name of the Nu-Way Credit Tire Co., one at Zanesville and the other at Lancaster, Ohio, both being under the management of D. C. Harris. The three stores are owned by Samuel Wolf and M. D. Schwartz.

Goodyear Stockholders' Suit

The latest development in the legal fight waged by a group of common stockholders to regain control of the Goodyear Tire & Rubber Co. from banking interests came November 19, with the filing of a new suit by stockholders, against Clarence Dillon, financier of New York, and John Sherwin, banker of Cleveland, asking their removal from power in Goodyear, and the restoration of more than $15,000,000 they allege the company lost as a result of their management.

Dillon and Sherwin are members of the committee of three which has controlled Goodyear since the reorganization of 1921. In addition to these, Goodyear also is named defendant. Stockholders in whose name the suit is filed are Robert H. Bishop, Jr., William T. Bentz, George B. Durell, H. A. Leisy, Frank C. Howland, P. H. Schneider, Paul V. Robinson, Frederick W. Freeman and F. C. Tomlinson.

Besides reciting financial wrongs which they say the company has suffered in the past, the petitioners assert that if the proposed refinancing program of the company is carried out, Dillon and Sherwin will make a new profit of $3,000,000. The program suggests replacing the present 8 per cent bonds and debentures and prior preference stock with $50,000,000 5½ per cent bonds and new prior preference stock.

The following suits now are pending against the Goodyear management: The first, filed in the state supreme court last summer by Summit County Prosecutor G. Walter Booth on behalf of a client who seeks to have 10,000 shares of management stock issued in 1921 in connection with the $85,000,000 refinancing plan of that year declared illegal; the second, started recently in the Common Pleas Court of Judge Scott Kenfield, Akron, is a stockholders' petition to reopen the 1923 "settlement" of suits attacking the Goodyear New York control. It is alleged the "settlement" was made on the order of the late Common Pleas Judge William J. Ahern, Jr., without the hearing of sufficient evidence; third, the present suit attacking the refinancing plans of the New York group and asking that restitution be made to the company of $15,000,000.

All briefs in connection with the second suit are to be in the hands of Judge Kenfield by November 26 and if he decides the suits should be reopened action is expected by the stockholders' group to have the 1923 judgments set aside. The Ohio Supreme Court suit, attacking the management stock, was scheduled for hearing November 30, but has been postponed until the January, 1927, court term. Efforts are being made by Prosecutor G. W. Booth to have it again set ahead.

American Anode, Inc.

American Anode, Inc., organized by The B. F. Goodrich Co., the Eastman Kodak Co., and the Anode Rubber Co., Ltd., of Great Britain, will develop in the United States commercial production of rubber goods under the Klein and Eastman process patents. These are result of the work of Dr. S. E. Sheppard, Dr. L. W. Eberlin of the Eastman laboratory staff, and Dr. Paul Klein assisted by his first collaborator, Dr. Andrew Szegvari and a staff of other chemists among which Dr. F. Gabor is to be specially mentioned.

The new corporation has as directors Julius Klein, vice chairman of the Hungarian General Credit Bank, and the Rubber Goods Factory, Ltd., Budapest; Howard Sachs, Goldman, Sachs & Co.; W. G. Stuber, president, Eastman Kodak Co.; F. W. Lovejoy, vice-president, Eastman Kodak Co.; B. G. Work, president, The B. F. Goodrich Co., and F. C. Van Cleef, secretary of the Goodrich company. Mr. Work is chairman of the board, Mr. Klein, president and vice-chairman; Mr. Van Cleef, vice-president and secre-

tary, and Mr. Lovejoy, treasurer. The corporation will have offices at 1780 Broadway, New York, as well as in Akron, Ohio, where commercial development of the processes is being undertaken in the Goodrich factories.

Midwest

The Gillette Rubber Co., Eau Claire, Wisconsin, is enlarging its plant by the construction of a warehouse for its raw material. The factory output is now a little more than 3,000 tires, 7,000 inner tubes, and 2,500 bicycle tires daily. R. W. Hutchens is vice-president and factory manager.

E. F. Schaefer has been appointed manager of the St. Louis branch of The Cooper Tire & Battery Co., the distributing organization of The Cooper Co., Cincinnati, Ohio, which maintains divisions in various leading American cities.

Pacific Coast

The mid-November announcement in San Francisco by Harvey S. Firestone that his company had decided to cut tire prices on an average of about 15 per cent, caused a decided flurry in the Pacific Coast tire trade. A similar reduction was at once made by all the eastern and midwestern tire companies represented on the Pacific Coast, and the local tire makers met the situation by either a cut averaging 15 per cent or the suspension of rebates and discounts to a corresponding extent. Nearly all agreed that it meant harder selling conditions. Some of the Coast tire manufacturers even hoped that the severe price slash would mean the development of more direct distribution among consumers, instead of marketing through agencies or wholesalers.

Certain it is that the position of some of the more active tire factories on the Coast is not weak, as they have taken care not to have excess rubber inventories, and have bought much cheap rubber. Moreover, several were prudent or fortunate enough to make excellent forward production contracts. It is the gyps who will suffer most but few tears are being shed for them.

The Spokane Chamber of Commerce reports that tire dealers in the eastern part of Washington have been getting their share of the general prosperity which the Northwest has been enjoying, and that there has been but little seasonal slowing up of sales since the end of summer. There are now no concerns manufacturing rubber goods in Spokane.

Efforts are still being made to rehabilitate the Sound Rubber Co., Tacoma, Washington, according to Receiver J. E. Berkheimer. The company has been insolvent for a year and repeated endeavors to float it have so far been unsuccessful. An order has been granted by the superior court for leasing it to a syndicate headed by W. E. McCormish, formerly of Akron; but the financial backers are now endeavoring to arrange for purchasing the plant instead. The concern had been doing a good business and had a modern, well-equipped tire factory.

H. L. McClaren, president of the McClaren Rubber Co., Charlotteville, North Carolina, and Lee S. Woodruff, sales manager, have been recent guests of H. E. Williams, Pacific Coast manager; and have also been calling on other representatives in this territory. Mr. Woodruff, before going to the factory, had looked after the McClaren interests on the Pacific Coast.

Frank C. Braden, general sales manager of the Hamilton Rubber Co., Trenton, New Jersey, was a recent visitor to the leading Pacific Coast cities.

The Coast Tire & Rubber Co., Oakland, California, has added to its contracts for tires, and by January 1 expects to raise the present 825 daily output at least 100 more. Some seventy-five skilled tire makers with their families have recently moved, mostly from Akron, Ohio, to Oakland, to join the Coast company's working force.

Many tire dealers on the Pacific Coast have lately been fleeced by a salesman for the "Dayton Peerless Manufacturing Co.," Dayton, Ohio, who offered to sell them casings at a considerably lower price than is charged by well-known makers. Terms were made very easy: 10 per cent in cash to the salesman "to protect the rubber factory (which the Dayton Chamber of Commerce says does not exist) against freight loss if the buyer fails to take delivery," and the remainder to be remitted to the mythical company in monthly instalments.

A considerable business in remaking tires is being done by the Nemer Tire Construction Co., 1350 N. Western avenue, Los Angeles, California, which employs forty vulcanizers and has what is claimed to be the finest steam plant of its kind on the Pacific Coast.

The Samson Tire & Rubber Corp., Compton, California, and of which Adolf Schleicher is president and founder, estimates that its 1926 sales will be more than those of 1924 and 1925 combined. It has recently added 23,000 square feet of floor space to its plant and increased its facilities to permit an output of 1,800 tires a day, with nearly as many tubes. The concern employs over 500 and has a monthly payroll of over $75,000.

The Eno Rubber Corp., Torrance, California, which recently took over the Hendrie Tire Co's. plant, and which maintains a Los Angeles warehouse at 1726 South Los Angeles street, is busy night and day with an increased force filling rush orders for the oil fields in this and other countries. President Musser states that sales of general mechanicals and specialty orders are also increasing.

Holding its own not only in the Northwest, but also increasing sales in the Southwest, the Columbia Tire Corp., Portland, Oregon, is planning for a very busy winter. In a very aggressive advertising campaign the company stresses the claim that it is one concern that does not use a particle of reclaimed rubber in its casings.

J. B. Magee, Los Angeles branch manager of the United States Rubber Co., having returned from a business trip to the Northwest, has latterly been studying trade in San Diego, California.

The following executives of the India Tire & Rubber Co., Akron, Ohio, attended a sales conference held November 11 to 18 at San Francisco, California: J. M. Alderfer, president; C. C. Prather, general sales manager; and R. E. Hedlund, bus and truck tires sales engineer. S. D. Eddy, of Eddy & Clark, advertisers, also attended. F. L. Ryan, formerly manager of the San Francisco branch, is now divisional sales manager in charge of the entire Pacific Coast territory, west of the Rocky Mountains.

An increase in sales for the first ten months of 1926 of 26 per cent over the corresponding period of 1925 is reported by the Mountain States Rubber Co., 121-125 Motor avenue, Salt Lake City, Utah, mechanical rubber lines being mainly responsible for this advance. The company also handles tires, while it has recently become exclusive distributer in its territory of Goodrich rubber "Process" flooring. Rudolph Orlob is president and general manager of the Mountain States company.

P. M. Harvey, formerly Phoenix, Arizona, manager of The B. F. Goodrich Co., has been transferred to the home sales office and placed in charge of a territory comprising twelve counties in Arizona.

Donald Hultz has been placed in charge of the warehouse operated by the General Tire & Rubber Co., in Phoenix, Arizona.

Resignation of Ora Hoerger, Firestone branch manager at Denver, Colorado, for the past seven years, has been announced.

Activities of California Goodyear

Mid-month production for November at the Goodyear Tire & Rubber Co.'s plant in Los Angeles averaged 6,500 casings and 6,400 tubes daily, and the management was confident that such production would be well sustained during the remainder of the winter season, aided with spring dating orders which are steadily increasing in number. E. L. Falls, manager of sales and promotion, has returned from a visit to the parent factory in Akron, stopping at the Goodyear branches in Denver, Salt Lake and Sacramento. P. J. Cox, in charge of repair materials, is making a business trip on the Atlantic Coast. A recent guest at the factory was James T. Phillips, treasurer and manager of the Royal Hawaiian Sales Co., Honolulu. The company reports a large increase in sales of casings, tubes and other rubber products in the Hawaiian Islands during the past few months.

Inner Tubes from Reclaimed Rubber

The Rubber Products Company of America, Bates City, California, announces that two 4-inch inner tubes made from rubber desulphurized by the company's processes have run over 32,000 miles. The material used in these tubes is said to have been made solely from reclaimed rubber costing not over 6½ cents a pound. The company employs the Willard processes for devulcanizing rubber which have been acquired on a royalty basis of $500 minimum monthly or one cent a pound for reclaimed rubber and one-half cent for reclaimed fabric.

Canada

It is rumored that manufacturers of automobile and truck tires are preparing new price lists for spring bookings that will show a decline in prices from 12 to 20 per cent. Dealers' new price lists on automobile, motorcycle and bicycle rubber goods accessories just issued show a decline on practically all lines. It is expected that the several rubber goods manufacturing companies will shortly issue new and lower prices on factory and mill supplies, belting, agricultural hose and sundry lines. Stocks of high priced crude rubber are fairly well depleted and with prices for rubber and fabric much lower than last year the reductions may be quite marked.

Rubber footwear prospects for the present season are excellent. Overshoes are as popular as ever and retailers' stocks are sufficient to supply all reasonable demands. There is an excellent demand for rubber footwear from the lumber trade. Salesmen are now on the road offering rubber-soled canvas shoes for next spring's trade. Crêpe soles are so popular that manufacturers have developed a compound crêpe sole that is favorably received. Spring orders for tennis shoes do not have to be placed before December 15. Generally speaking, rubber products are being manufactured more extensively than last year and reports are favorable regarding orders for winter and spring delivery of practically all classes of rubber goods.

Fred A. Richardson, manager of the Vancouver, British Columbia, branch of Ames (Holden) McCready Rubber Co., Ltd., reports good business for the new line of A. H. M. brand guaranteed tennis shoes made with the crêpe sole bottoms and the new sole called crepette. Another new one sold under the A. H. M. brand has a moleskin upper with a heavy crêpe sole and solid crêpe heel. The Nootka fishing boot and rubber footwear for lumbermen, miners and farmers are in good demand.

The Miner Rubber Co., Ltd., Montreal, had a very attractive booth at the National Produced-in-Canada Exposition, where crude rubber and other materials which go into the manufacture of their various products were exhibited. Rubbers, overshoes, tennis and sport shoes and raincoats were shown. Numbered blotters representing the soles of Boy Scout and Girl Guide rubbers were distributed, and those holding the lucky numbers were awarded pairs of rubbers as prizes at the close of the show. A special feature at the Miner booth was a motion picture demonstration of the manufacture of rubber footwear. G. U. Larose and George Poirier had charge of the exhibit.

The W. J. Anderson Manufacturing & Rubber Co., Ltd., will move its factory from London, Ontario, to Sherbrooke, Quebec, on December 1. This company manufactures rubber aprons and other rubber goods.

Leonard L. Stanyon has severed his connection as sales manager of the Paramount International Rubber Co., and is now the Canadian representative of the Toy Sales Division of the Miller Rubber Co., Akron, Ohio. Mr. Stanyon will make his headquarters at 212 McGill street, Montreal.

The Farnham, Quebec, Board of Trade recently entertained the Quebec Division of the Canadian Manufacturers' Association at Farnham. Among the speakers of the evening were George R. Keltie, general manager, American Wringer Co., and E. Leveille, secretary of the Eastern Rubber Co.

The annual entertainment of the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, known as "Dunlop Night" was held recently in St. Barnabas Hall. John Westren, vice-president and general manager, delivered the address of welcome.

The Montreal Motor Show, said to be the third largest on the continent, is to be held in the Morgan Building, Montreal, from January 22 to 29, 1927. It will comprise motor cars, trucks, buses and automobile equipment.

F. K. Espenhain, vice-president Goodyear Tire & Rubber Co., Akron, Ohio, was elected to the board of directors of the Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, at the recent annual meeting.

The Waterloo Rubber Specialty Manufacturing Co., Ltd., Waterloo, Ontario, has been recently chartered with a capitalization of $100,000. A. B. McBride of Waterloo is a director, while headquarters are established at Waterloo.

The Canadian Goodrich Co., Ltd., Kitchener, Ontario, has been registered to do business in the Province of British Columbia with head office at Vancouver, British Columbia.

The Joseph Stokes Rubber Co., Trenton, New Jersey, will erect an addition to its plant at Welland, Ontario. The plant will be one story and will cost approximately $55,000, including equipment. The company manufactures hard rubber goods exclusively at both the Trenton and Canada plants.

The Lee Puncture Proof Tire Co. of Canada, Ltd., Montreal, is in liquidation. Petition to continue the business has been granted.

Canada's Tire and Tube Exports

During the first nine months of the present year Canada, according to the Department of Commerce, exported 817,791 automobile casings, value $11,016,025; 787,499 inner tubes, value $1,926,969; and 6,510 solid tires, value $220,501. The leading markets for some of these goods were: the United Kingdom, taking 149,978 casings, value $1,886,860; New Zealand, 67,874, value $1,132,953; Australia, 57,694, value $869,821; Argentina, 70,667, value $822,196; Dutch East Indies, 47,251, value $582,878; British South Africa, 44,102, value $549,451; and France, 22,554, value $465,298.

The United Kingdom was also the largest purchaser of inner tubes, the totals being 95,577, value $223,401; followed by New Zealand, 63,490, value $188,397; and Argentina, 83,042, value $175,576. Solid tires were bought chiefly by New Zealand, 668, value $54,921; Argentina, 494, value $22,158; and the United Kingdom, 579, value $20,534. Canada's tire and tube exports have greatly increased in both volume and value during recent years, the advance being especially noticeable during the first half of 1926.

The Rubber Trade in Europe

Great Britain

As the present year draws to a close, the rubber trade, in common with other industries, is reviewing the activities of the past months, in order to estimate gains or losses. Some interesting statements in this connection were made recently by H. Eric Miller at the annual meeting of the stockholders of Harrisons & Crosfield. Mr. Miller said in part:

It is unlikely that the total exports of crude rubber from producing countries during 1926 will exceed 600,000 tons dry rubber, which is about 100,000 tons more than 1925, due partly to increased production and partly to the fact that estates had, at the beginning of the year, substantial stocks available for export as the percentage rate rose under the Stevenson scheme. The rapid rise in the output of Dutch native rubber which took place between 1921 and 1925 has been stayed, and their 1926 production is likely to be less than 1925.

The actual absorption by the United States during the current year, in spite of a belated spring, will probably be in the neighborhood of 375,000 tons (slightly less than it was in 1925), while the rest of the world will absorb between 180,000 and 190,000 tons. World stocks of crude rubber have increased by 30,000 tons since the beginning of the year, and the steadiness of the market is an indication that their augmentation is welcomed by the trade.

Honorarium for Sir Henry Wickham

In recognition of Sir Henry Wickham's services to the rubber industry, the Government of British Malaya has recently presented him with £8,000. It will be recalled that on May 29 last, his eightieth birthday, Sir Henry was the recipient of £5,000, the gift of an American in recognition of the rubber pioneer's work, while somewhat later an additional £1,000 was forthcoming, a present from an oil company which also wished to remember the "Father of the Plantation Rubber Industry." Gifts this present year to the veteran rubber planter have thus far totaled £14,050.

Institution of the Rubber Industry

During the first meeting of the Salesmen's Section, held October 18 at the Engineers' Club, London, an interesting paper was read by W. H. Harford, who took as his subject "Why Advertising Is Like Rubber." A lively discussion followed, many well-known rubber men taking part, among them Sir Henry Wickham. On the evening of November 1 the London and District Section also held a meeting at the Engineers' Club, Sir Stanley Bois, president of the Institution, being chairman. The leading address, "Education For and In the Rubber Industry," was given by Dr. P. J. Drakeley. On November 23, C. R. Boggs read a paper on "Selenium," while on December 6, A. Fraser will make an address, taking as his subject "British and American Machine Practice."

The Manchester Section met November 11 at the Textile Institute, Manchester, the program including several short papers. Among them were the following: "Rubber Softeners," by W. M. Burbridge; and "The Effect of Solid Compounding Ingredients As Softeners," by E. A. Hurlston.

The General Council of the Institution of the Rubber Industry during a session on October 13 elected to membership five Fellows and nine Associates. The latter were included in the general rubber technology, engineering, and science divisions.

On November 2 Sir Stanley Bois gave an address before the Royal Society for Encouragement of Arts, Manufactures & Commerce, taking as his subject "The Importance of Rubber In the Economic and Social Progress of the World."

New Rubber Paving Test

Rubber is being utilized in the repaving of one of the busiest thoroughfares in London, at New Bridge street, Blackfriars, where a section comprising about 700 square yards, the full width of the roadway, was laid by the Universal Rubber Paviors, Ltd., of Manchester, and opened to traffic September 25. The work is under the superintendence of Mr. Harding, on behalf of Rubber Roadways, Ltd., and L. A. Gaisman, chairman of the Universal Rubber Paviors, Ltd. In the Gaisman process, the blocks are all cemented together with a special bitumen compound, making it impossible for any leakage to take place, while the blocks themselves, measuring 10⅜ by 8½ by 4¼ inches, are formed of a hard brick base capped with rubber ⅝-inch thick, vulcanized on ebonite. As a protection against skidding, the face of the rubber is prepared with shallow channels, while the blocks are laid on the ordinary concrete foundation used for wood paving.

Five-Day Week Successful

The plan of establishing a five-day working week, as at the Ford automobile factories in the United States, is not new to the British rubber industry, according to Fordyce Jones, of the Reliance Rubber Co., London. Mr. Jones mentions many benefits received by his organization through the installation of the new schedule, particularly a substantial increase in production; greater economies effected; steam and other power costs reduced; plant maintenance simplified and made more efficient. With more opportunities for sports and social occasions the health and welfare of the staff have improved, and in general, a keener spirit of enthusiasm has arisen throughout the organization.

British Notes

Phillips Rubber Soles, Ltd., 142-146 Old street, London, E. C. I., has been established for the purpose of taking over the business and net assets of Phillips Rubbers, Ltd., an organization formed in 1898 by W. W. Phillips. The subsidiary companies are: the Premier Waterproof & Rubber Co., Ltd., and the Guide Bridge Rubber Co., both of Manchester. It is stated that the company's recent issues of 240,000 shares of preferred and 360,000 shares of common stock were heavily over-subscribed.

J. Schnurmann of Downham Mills, Tottenham, London, N. 17, has appointed Norman Sladden as joint London manager and also director of the following allied companies: Rubber Industries, Ltd., and J. Sherman & Co., Ltd. Products of the above organizations include chemicals and compounds for the rubber industry.

The Lambert Tire & Rubber Co., Akron, Ohio, has recently renewed its contract with its dealers in Great Britain, under terms whereby regular carload shipments will be made monthly.

Jeavons & Tinto, Ltd., crude rubber brokers, are carrying on the business at St. Dunstans Buildings, London, E. C. 3, which was formerly maintained as Reeves & Jeavons, Ltd.

A meeting of the Executive Committee of the Seventh International Rubber Exhibition, to be held next January in the Grand Palais, Paris, France, took place recently at the English office, 43 Essex street, London, W. C. 2. Lord Colwyn, as head of the British division, in the course of his remarks announced that already twenty foreign governments had signified their intention to participate in the Exhibition, and that the available spaces for national displays were now becoming filled.

The British Industries Fair will again be held at the White City, London, and at Castle Bromwich, Birmingham, when practically every branch of British commercial enterprise will be represented. The exhibitions will be on display from February 21 to March 4, 1927. Full information may be obtained from The Department of Overseas Trade, 35 Old Queen street, London, England.

Germany

Friederich Schwabenthan & Co.

The well-known and old established firm of Fr. Schwabenthan & Co., manufacturers of rubber machinery, has been entered anew in the Industrial Register, Berlin-Mitte.

The history of this concern goes back to the year 1856, that is 70 years. At that time a factory for constructing special machinery was founded by A. Dresel who had connections with the newly developing rubber industry. In 1887, Friederich Schwabenthan, a native of southern Germany, acquired the concern. He soon discovered the growing importance of the rubber industry and by 1890 was devoting himself to the construction of rubber machinery exclusively. When he died in 1908, his son took over the business and continued it till 1918 when he was forced to take a partner into the business. As a result, the firm of Schwabenthan & Gomann A.-G. was formed in 1921. However, the producing of rubber machinery suffered by this new arrangement, consequently Fritz Schwabenthan withdrew from the company and now has taken over the rubber-machinery department again as sole owner and director. The new firm has brought its models and methods up-to-date and is now able to supply carefully constructed machinery to specifications.

German Rubber Specialties

The Gummiwarenfabrik Michael Hahn, Munich, advertises a new nipple which is specially reinforced so that it fits the neck of any bottle tightly and cannot be pulled off by the infant. The nipple is easy to clean and though made of the best materials, is not any more expensive than the usual style of nipple of similar quality.

The firm also produces a new pacifier combined with a white teething ring which is filled with sponge rubber.

Among its lines of rubber-soled fabric shoes for different purposes, Schuhfabrik Herbst A.-G., Mannheim, includes various styles of camel's hair shoes and slippers with rubber soles either gummed or sewed on.

German Trade Notes

The shareholders of the Phil. Penin, Gummiwarenfabrik A.-G., Leipzig and of the Leipziger Gummiwarenfabrik A.-G., vorm. Julius Marx, Heine & Co., have been invited to attend a meeting where the proposal of a fusion made by the first concern to the second will be considered. Under the terms suggested, the entire property of the Leipziger Gummiwarenfabrik A.-G. will, after settlement of debts and accounts, be transferred to the Phil. Penin A.-G. The Leipziger Gummiwarenfabrik was forced to stop all operations some time ago.

Paul Tiefenbach & Co. has newly been formed to import and export crude rubber, balata and gutta percha and also to deal in these articles. The fully paid up capital is one million marks.

Otto Geith, formerly owner of the firm Geith & Co., Hamburg, which is being wound up, is sole proxy with legal power to sign for the firm.

Leading German manufacturers of automobile tires propose to reduce prices as from November 1, 1926. The cut varies from 3 to 12 per cent according to style and size and pneumatics, giant pneumatics and solid tires for both passenger cars and trucks are affected.

France

The Société Caoutchoucs et Cacaos du Cameroun, headquarters at 14, rue de Vezelay, Paris, has been formed to undertake all industrial and commercial operations in connection with tropical products, particularly crude rubber. The capital, which is fully subscribed, is 4 million francs and may be raised to 10 millions.

The Caoutchoucs et Cacaos du Cameroun owns two large plantations with an area of 7,000 hectares (hectare=2.45 acres), along the borders of the river Campo, Cameroons, about 20 miles from the sea. These plantations had been opened up by a powerful German group in 1911, which had spent about 12 million marks on it. The property was put under sequestration during the war and sold by the French government.

Another new French rubber-producing company is the Société Agricole et Industrielle de Bencui, formed to plant sugarcane, Hevea and other products, in Indo-China. Headquarters are at Saigon.

French planting companies in Indo-China have had a profitable year, some firms reporting big increases in gains as compared with those for the preceding year. Thus Plantations de Terres Rouges had net profits of 52,288,530 francs over the year 1925 against 5,342,087 francs the year before. Plantations d'An-Loc report net profits of 10,730,025 francs over the business year 1925-26, as compared with 1,573,615 francs over 1924-25.

Prize for Denaturing Naphtha

The Chambre Syndicale des Fabricants de Caoutchouc de Belgique (The Society of Belgian Manufacturers of Rubber), offers a prize to the chemist who succeeds in discovering a denaturing agent for naphtha employed in the manufacture of rubber. Of course, the naphtha denatured by this process should not adversely affect articles manufactured with it. Those interested should submit replies to the Chambre Syndicale des Fabricants de Caoutchouc, 15 Avenue Marnix, Brussels, Belgium.

EUROPEAN MANUFACTURERS OF FOOTWEAR AND HEELS

The Vereinigte-Gummiwaren Fabriken, Wimpassing, one of the leading European rubber footwear manufacturers, is the only Austrian concern known to be manufacturing rubber footwear. It has been taken over by the Semperit Oesterreichisch-Amerikanische Gummiwerke A.-G., with headquarters at Vienna. Besides footwear, the first-named firm also makes soles and heels, the Salvator heel being one of its products. The Semperit Oesterreichisch-Amerikanische Gummiwerke A.-G., produces Palma rubber heels and soles. This with the Berson brand of heels and soles manufactured by Josef Reithoffer's Soehne, Vienna, are the leading brands in Austria. Other Austrian types are the Paramon and Narbin, made respectively by the Gummi Industrie Gesellschaft m. h. H, Neubaugasse of Vienna, and the Narbin Werke Brigittenanerlaende 46, Vienna.

Of the three leading French rubber footwear manufacturers, Etablissements Hutchinson is the most important. This firm has branch factories in Germany and branches in Italy, Spain, Switzerland and England, besides Algeria and Morocco in North Africa. It manufactures every kind of rubber footwear, but it exports chiefly cheap canvas, rubber-soled shoes and rubbers. The two other big firms are Société Industrielle des Telephones and the Caoutchouc Industriel du Sud, of Nice, the latter of which markets rubber soled canvas footwear under the trade-mark C. I. S. Besides there is "Au Soleil" which is making good progress.

In Belgium the round heel is most popular and is supplied chiefly by the manufacturers O. Engelbert Fils et Cie, Liege; Etablissements Caoutchoutier d'Eupen, Eupen; and Manufacture Liegeoise, Liege.

The Rubber Industry in the Far East

Malaya

ONE of the most frequent topics of discussion here is the question of unused coupons and what to do about them. There seems to be a doubt in some quarters as to what the "carry-over" or unused export rights signify. Some appear to feel that rubber is being hoarded with a view to unloading it when prices rise. However, this is not the generally accepted view. On the whole, the opinion is that the carry-over indicates too high a standard of production for Malaya, and perhaps for Ceylon too. It is considered that in spite of several readjustments of assessments, many companies still are allotted more than they can export, while of course there are some that could produce more than they are assessed. It is conceded that there probably is some hoarding, but not enough to cause any uneasiness.

Unused Coupons

In taking up this matter in the *Straits Budget's Rubber Supplement*, A. W. S. points out that considering the steady rise of stocks, producers have every reason to be well pleased that the shortage has occurred. He desires that the restriction scheme shall not be tampered with, but he does agree that it would be an advantage to cancel unused credits and coupons, say at the end of each restriction year. In a later article he explains the matter of unused coupons as follows:

The rubber estates in the restriction area are held by three large groups: *A*, European owners; *B*, Asiatic holders of large estates; *C*, Asiatic owners of small estates. Standard production is based on the output obtainable from an estate with a reasonable system of tapping. Most European owners follow the alternate daily tapping system although it gives them only about 80 per cent of their standard production.

Many Asiatic owners of big estates tap daily and so get full production, while most of the Asiatic small holders tap to the limit. Now using 500 as a sort of index figure the workings of the three groups are as follows:

	Standard Production	Actual Production	Unused Coupons	Surplus Rubber
A	500	400	100	...
B	500	500	...	...
C	500	600	...	100

The above is with exportable at 100 per cent of standard. When the exportable is cut to 80 per cent, the table appears as follows:

	Exportable 80%	Actual Production	Unused Coupons	Surplus Rubber
A	400	400	...	...
B	400	500	...	100
C	400	600	...	200

From this it is seen that European estates remain unaffected but the Asiatics have to hoard what they cannot export. Although there is a large accumulation of unused credits standing in the names of European estates mainly, it seems hard to believe that they will prejudice the price obtainable for their own actual output by using their surplus export rights to cover surplus rubber produced on Asiatic estates. The danger of unused coupons, therefore, does not seem to be so much that Europeans will export more than they can produce by buying surplus Asiatic rubber, but that Asiatics will hoard rubber. It must be remembered that large scale hoarding means locking up of considerable capital, and this Asiatics do not like unless they are sure of very large profits. So that it follows that hoarding is probably not being indulged in to a very great extent.

The Coming Rubber Shortage

The former editor of the *Straits Times*, writing to his old paper over the initials A. W. S. regularly every week recites his faith in the coming shortage of rubber. He dinned his creed regarding restriction into Malaya until Malaya shared his confidence and restriction went through. It will be much easier for him to make producers believe in a prolonged period of blessed prosperity when supply of rubber shall fall far short of demand and prices will be correspondingly high. And it almost looks as though his brand of Couéism might succeed.

Last month the *Malayan Tin and Rubber Journal* was very sceptical about a coming rubber shortage, but this month there is a marked change in its tone. It quotes a few correspondents to English papers who have the same view as Mr. Still and does it with an air of saying "Well, maybe, you never can tell."

It would be an interesting example of the power of mental-suggestion in the rubber industry if Mr. Still succeeded in suggesting a real rubber shortage into existence.

The Vallambrosa Rubber Co.

The Vallambrosa Rubber Co., Ltd., declared a final dividend of 100 per cent making the total dividend 175 per cent for the year. This company was formed in 1904 when it acquired estates of 930 planted acres. The area now in bearing is 3,280 acres, and this result has been attained without calling on shareholders for further capital. The issued capital of the company still stands at £50,600, the two younger estates of Bukit Kraiong and Athlone having been brought into bearing out of revenue.

The crop harvested for the year 1925-1926 was 895,819 pounds against 731,458 pounds, the estimate for the current year is 1,209,000 pounds, subject, however, to any restrictions which may be imposed during the year. The gross average price realized was 2 shillings, 10.14 pence per pound, while the all-in cost for the year was 8.99 pence per pound, the f.o.b. cost being 6.48 pence per pound.

The company has current forward contracts to the end of December, 1926, for 20 tons per month at an average gross price of 2 shillings, 4½ pence.

Netherlands East Indies

The authorities in Palembang are now considering the various applications made for permits to establish factories for remilling native rubber. Before long three large factories will be completed, namely: for the Netherlands Rubber Union, Firestone and the International Credit and Commercial Association "Rotterdam." More will probably be erected, but these are the most important.

It is learned that the factory buildings acquired by the Netherlands Rubber Union at Palembang cover an area of 125,000 square meters and will be ready for operations about the first of January. In Djambi the concern bought an area of 40,000 sq. mm. and preparations have been started for building a remilling factory. The site bought in Banjermassin for a similar purpose is 70,000 square meters in area. These factories are expected to be ready within ten months. To begin with, 24 machines per factory will be installed which can be increased to 48 machines if necessary. The 24 machines have a capacity of 7,000 tons per annum.

Besides applications from big European and American concerns, the authorities have also received a number of requests from

Chinese firms for permits to start remilling factories in Sumatra and Borneo chiefly, however, with comparatively small capacity.

The Rubber Position

The Mededeelingen van de Handelsvereenigingte Medan publishes an interesting discussion of the rubber position. The article in question begins with a review of native rubber, which, it points out, is not having the stabilizing effect on the rubber market that it was expected to have when its importance first became evident. Exports of native rubber show a slight decline, amounting to 10 per cent, for the first half of 1926 as compared with the first half of 1925, the respective amounts being 57,000 tons and 63,000 tons, net weight. On the other hand estate rubber continues to increase steadily, the figures for January-June, 1926, having been 55,000 tons against 47,000 tons for the corresponding period of the preceding year, so that the total exports from the Dutch colonies for 1926 are expected to be about the same as for 1925.

Turning to Malaya and Ceylon, we find large increases over exports of 1925, but these are below the standard production figures. From the above circumstances the conclusion is drawn that the world production will not be much above 600,000 tons in 1926.

As to consumption, imports into America continue at the same high level of 1925, but it is thought that actual consumption is slowly moving in a downward direction and that considerable stocks have been gathered.

The conclusion based on the above is that 1926 will show a surplus of production over consumption, which will, however, not be very great.

Discussion of Planting Subjects

At a meeting of the Soekaboemi and Planters' Association held in September, several well-known scientists and planters were present, among others, Dr. O. de Vreis, Dr. Riebl, Dr. Steinmann, Dr. Bobilioff, Dr. Deuss, Mr. Keuchenius, etc., and several interesting discussions were held on various subjects pertaining to rubber.

Dr. O. de Vries spoke on bud grafts and selected seed. Regarding the question as to whether seedlings or bud grafts were preferable, he stated that for the first few years buddings would be the favorites. The importance of stock as well as of the mother tree was discussed and also the chances of a good mother tree yielding a good clone. Oddly enough the chances are not very great. In the speaker's opinions results in bud grafting and seed selection were very satisfactory considering that in reality only the first steps had been made in this direction. The real improvement of planting material, the systematic raising of superior grades still had to come.

Dr. W. H. Steinmann discussed various molds affecting roots of Hevea.

Later on the question as to the best method of packing Hevea seed for shipping was considered. One of the members had shipped seed to Singapore packed in charcoal, but none of the seeds germinated when planted after reaching their destination.

Dr. Bobilioff laid down some rules for packing rubber seed. First the seed should be freshly gathered and if for short distances, could be packed, somewhat moist, in petroleum tins. For longer distances, stout cases with layers of coconut fiber should be used.

Mr. Keuchenius stated that he had sent seed over a distance requiring 14 days of travel; the seed, after being planted showed 90 per cent germination. This seed was packed in boxes with three wooden horizontal partitions, in coconut fiber which had previously been moistened.

At this meeting a letter from Dr. O. de Vries was read in which the suggestion was made to organize a big meeting of planters to discuss all possible questions in connection with tea and rubber, to take place next year. The meeting heartily approved of this and with the aid of Dr. de Vries and Dr. Deuss a planters' congress to last three days will be organized, the convention to take place at Bandoeng.

Green manures in rubber gardens was the subject discussed by Dr. Bobilioff at another meeting of planters. Green manures come under three categories, he said, first the tree-like plants, then the shrub forms and finally the creepers. He showed that owing to the condition of the soil it was often not possible to plant the creepers and that the other two types should be used first. On soils where nothing will grow, Albizzia has of late been frequently recommended.

In the 1925 report of the Rubber Experiment Station, West Java, mention is made of a method of obtaining a large number of bud grafts from certain clones which would otherwise yield only a small quantity of buds. Several bud grafts of this clone were planted in newly prepared nursery beds at a distance of 4 m. The intention was to have the bud grafts grow up at the same time as the seedlings. After about 9 months the seedlings were ripe for budding and at the same time the bud grafts planted with them had a large number of buds on their shoots. The shoots were not cut off for bud wood, but the buds were removed from the little stems and grafted onto the neighboring seedlings. The shoots continued to grow and now yield a far greater quantity of buds than if they had been cut off for bud wood and new shoots had to develop.

The wounds caused on the shoot by removing the buds were smeared with wax to prevent drying. No ill effects from this treatment were observed in the shoots which continued to develop in a healthy manner.

CEYLON LAGS BEHIND

Reports of the work the Dutch are doing in connection with budding and seed selections and the high yields obtained have roused the Ceylon planters to a realization of the need for further information regarding this matter. Therefore, H. W. Roy Bertrand, chairman of the Kalutara District Planters' Association and C. E. A. Dias of Colombo made an investigating trip to the neighboring Dutch Colonies. They spent ten days in Java and ten days in Sumatra and came to the conclusion that Ceylon has lost eight valuable years or, in planting terms, two filial generations. The Dutch, they found, have attained marked success and practically all planting in now done with proved buds or selected seed. Besides the work done by the experiment stations, many estates are also spending large sums of money in testing mother trees and in establishing a pure line of seeds.

The investigators state that they saw one clone of about half-an-acre of four-year-old trees giving in its first year an output which worked out at 1,824 pounds per acre per annum; while another clone, double the size, consisting of seven-year-old trees, was giving a yield which worked out at 1,235 pounds per acre per annum.

WHAT USE PARANITROPHENOL

On the list of chemicals shipped from Liverpool for Penang and Port Swettenham, it is learned there appeared the item 40 hundred weight of paranitrophenol. The great part of plantation rubber comes on the market as smoked sheet, and in smoking rubber, the powerfully disinfecting effect of certain components of the smoke plays an important part. Owing to scarcity of wood in Malaya, Dr. Stevens of the Rubber Growers' Association in 1924 investigated the action of other disinfectants, and finally hit upon paranitrophenol. Treatment with this did not affect rubber either before or after vulcanization. It is not known whether the shipment is destined for large scale tests or whether some plantations have already decided to use paranitrophenol.

DUTCH GUIANA

Exports of balata from Dutch Guiana fell from 137 tons in the first six months of 1925 to 61 tons in 1926.

Rubber Patents, Trade Marks and Designs

The United States

October 12, 1926*

1,602,429 Corset. Hazel Elmira Gray, New York, N. Y.
1,602,454 Football player's pad. John T. Riddell, Evanston, Illinois.
1,602,567 Golf club. Worth Colwell, Forest Hills, New York.
1,602,571 Shoe fastener. Charles J. Coons, Ancram, New York.
1,602,574 Pneumatic tire. Gustav Degenring, assignor to North Eastern Rubber Co., both of Elizabeth, New Jersey.
1,602,637 Shoe heel. Bernard R. Barva, assignor to Wedge Heel & Rubber Co., both of Fort Wayne, Indiana.
1,602,727 Head guard. Archibald J. Turner, assignor by mesne assignments to Wilson-Western Sporting Goods Co., both of Chicago, Illinois.
1,602,759 Telephone rest. Bruce Thomas Dyer, Los Angeles, California.
1,602,903 Boot sole. Benjamin F. Hartwell, Winchester, Massachusetts.
1,603,001 Abdominal water bag. Howard G. Carter, Detroit, Michigan.
1,603,131 Massage device. Beatrice Mabie, New York, N. Y.

October 19, 1926*

1,603,348 Vibration dampener. Hugh C. Lord, Erie, Pennsylvania.
1,603,422 Article holder for hats. Barron J. Sloan, New Brighton, Pennsylvania.
1,603,513 Fluid holding toy. Mitchell Carter, Salt Lake City, Utah.
1,603,671 Rope supporting holder. William Martin Epton, Johannesburg, Transvaal, South Africa.
1,603,841 Diaphragm for use in talking machines and other acoustic apparatus. Frank Thomas Dashwood Coe, Balham, London, England.
1,603,876 Furniture tip. Aubrey Breeding Shapard, assignor of one-half to Drake Lock-Nut Co., both of San Francisco, California.
1,603,923 Emergency overshoe. Harry J. Powers, Jr., Chicago, Illinois.
1,604,085 Catamenial apron. Jacob Stein, New York, N. Y.

October 26, 1926*

1,604,136 Rubber dam construction for dental use. Charles I. Stoloff, New York, N. Y.
1,604,185 Tire. Jaquelin M. Meredith and Temple A. Nuckols, Norfolk, Virginia.
1,604,282 Submarine cable. Richard A. Haislip, Montclair, New Jersey, assignor to American Telephone & Telegraph Co., New York, N. Y.
1,604,435 Massaging device. Edith Wharton, assignor to Blanche Cervelli, both of San Francisco, California.
1,604,515 Tire patch. William C. Howard, Mexico, Missouri.
1,604,527 Tire cover. Thomas J. McCormick, Detroit, Michigan.
1,604,583 Adjustable and interchangeable rubber cushion for shoes. Martin Karpe, Cassel, California.
1,604,659 Heel. Benjamin Ross, Chelsea, assignor to Panther Rubber Manufacturing Co., Stoughton, both in Massachusetts.
1,604,696 Golf grip. Albert S. Jordy, assignor by mesne assignments to The Correct Golf Grip Co., both of Baltimore, Maryland.
1,604,934 Antiskid and puncture proof tire. Harry L. Smith, New York, N. Y.

November 2, 1926*

1,604,954 Overshoe. Mary Frost Artz, Detroit, Michigan.
1,605,102 Fender. George Eastman Dryden, assignor to Dryden Rubber Co., both of Chicago, Illinois.
1,605,257 Resilient vehicle wheel. Lindsay McKee and Charles A. Roach, Portland, Oregon.
1,605,311 Paper board testing machine with rubber diaphragm. John W. Webb, Mineola O'D. Webb, administratrix of said John W. Webb, deceased, assignor to Webb Tester, Inc., both of Chicago, Illinois.
1,605,346 Elastic vehicle wheel. Emil Herrmann and Karl Kaufmann, Mulheim-Ruhr, Germany.
1,605,403 Air cushion sole. James Huiskamp, Keokuk, Iowa.
1,605,427 Nursing nipple. Anna M. Delmas, North Plainfield, New Jersey.
1,605,473 Baby jumper. Hazel H. Schneidau, Los Angeles, California.
1,605,517 Tree filling. Louis G. Dapero, Summit, New Jersey.
1,605,559 Window stop. Robert C. Piscator, Indianapolis, Indiana, assignor to Quality Plating & Manufacturing Co., a corporation of Indiana.
1,605,573 Building element. James H. Stedman, Braintree, Massachusetts.
1,605,603 Fountain brush. Thomas J. Mulvahill, Watertown, assignor to Boston Woven Hose & Rubber Co., Cambridge, both in Massachusetts.
1,605,643 Safety valve for pneumatic tires. Henry C. Boll, North Little Rock, Arkansas.
1,605,899 Laminated sheet material. Kirke L. Moses, Brookline, Massachusetts.

*Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

November 9, 1926*

1,605,914 Collapsible tube. Mabel R. and Franklin L. Bishop, Cleveland, Ohio.
1,605,959 Massaging belt. John Steece Lefevre, Philadelphia, Pennsylvania.
1,605,994 Compression tube. Roper C. Spratling, Opelika, Alabama.
1,606,018 Leather and latex welt for shoe. Alfred P. Crawford, Marlboro, Massachusetts.
1,606,154 Tire. Andrew P. Douros, Aberdeen, assignor of four-tenths to Peter Michel, Tacoma, both in Washington.
1,606,244 Tire. Alvaro S. Krotz, Janesville, Wisconsin.
1,606,360 Toothbrush holder. Harvey Giles, Brooklyn, New York.
1,606,522 Polo mallet head. Abraham L. Freedlander and William G. Goodwin, assignors to The Rubber Development Co., all of Dayton, Ohio.
1,606,529 Resilient heel. Charles E. Harriman, West Bridgewater, Massachusetts.
1,606,584 Tire signal. Conrad Langham, Los Angeles, California.
1,606,682 Inner tube. James T. Anderson, Lawrence, Massachusetts

The Dominion of Canada

October 12, 1926

264,943 Foot arch support. William M. Scholl, Chicago, Illinois, U. S. A.
264,945 Foot arch support. William M. Scholl, Chicago, Illinois, U. S. A.
264,947 Stocking protector. William M. Scholl, Chicago, Illinois, U. S. A.
264,951 Tire. Hugo de Watteville Senutha, Weehawken, New Jersey, U. S. A.
264,967 Fountain pen. Leslie Roy Wade, London, W. C. 2, England.

October 19, 1926

265,188 Cushion tire. The Goodyear Tire & Rubber Co., assignee of Richard Stuart Burdette, both of Akron, Ohio, U. S. A.

October 26, 1926

265,272 Eyes for toys. George B. Fitzgerald, Douglas, Arizona, U. S. A.
265,329 Sheet material. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of Alfred Elmer Jury, Rutherford, New Jersey, and Merwyn Clarence Teague, Long Island, New York, both in U. S. A.

November 2, 1926

265,416 Garter. Leon M. Davis, Fairmont, West Virginia, U. S. A.
265,573 Foot corrective device. The Dr. Wood Foot Appliance Co., assignee of Joseph B. Saums, both of Cleveland, Ohio, U. S. A.

The United Kingdom

October 6, 1926

256,379 Drip catcher for teapots, etc. C. C. Craven, 13A, Alexandra Road, Gipsy Hill, London.
256,412 Rubber strip for motor bonnet. Hancock & Warman, Ltd., and H. Hancock, 156, Walsgrave Road, Coventry.
256,430 Aviator's helmet. H. R. Hart, 141, North Mountain avenue, Montclair, New Jersey, U. S. A.
256,512 Soap holder. F. G. Mullins, The Summit, Hill Top Road, Oxford.

October 13, 1926

256,712 Surgical trusses. I. Dilley, 25, Freehold street, Northampton.
256,715 Rubber covered hat block. A. and W. E. Turner, White House Works, Ashton Road, Denton, near Manchester.
256,756 Paving block. O. Y. Imray, 30, Southampton Buildings, London, (International Motor Co., 25 Broadway, New York, N. Y., U. S. A.).
256,796 Emergency rubber canvas for endless track vehicles. T. A. G. Hawley, R. A. F. Depot, Uxbridge, Middlesex.
256,899 Rubber washer for vehicle wheel. E. L. Illingworth, Sutton, Eshowe, Zululand, South Africa.
256,912 Umbrellas. G. S. Hislop, 98, Dunlop street, Glasgow.
256,952† Electric cables. Siemensschuckertwerke Ges., Siemensstadt, Berlin, Germany.
256,974† Artificial respiration apparatus. R. Eisenmenger, 28, Mariahilferstrasse, Vienna.
257,040 Printing machine. E. C. R. Marks, 57, Lincoln's Inn Fields, London (E. Gerasch Ges., 23 Täubchenweg, Leipzig, Germany).

October 20, 1926

257,096 Tramway tires. E. Holmes, 79, Khedive Road, Forest Gate, London.
257,104 Electric cables. C. J. Beaver, Bell Place, Stamford Road, Bowdon, Cheshire, and W. T. Glover & Co., Ltd., Trafford Park, Manchester.
257,124 Golf balls. H. F. Mitzel, 70A, Gautier avenue, Jersey City, New Jersey, U. S. A.
257,144 Spring wheels. T. H. Rushton, 11, Blyth Road, Worksop, Nottinghamshire.
257,194 Air tubes. A. G. Fitzgerald, Brookline, Massachusetts, U. S. A.
257,282† Feeding bottle nipple. R. Kiesel, 28 Mannheimerstrasse, Schwetzingen, Baden, Germany.

†Not yet accepted.

Chemical patents will be found on page 145. Machinery and Process Patents on pages 148-149.

257,287* Supports for wearing apparel. H. Hentzler, 38 Münchenerstrasse, Schöneberg, Berlin, Germany.
257,291 Boot stiffeners. B. Fuchs-Zwicker, 59 Spitalackerstrasse, Berne, Switzerland.
257,442 Apparatus for testing eggs. D. J. Cook, Gunthorpe, near Melton Constable, Norfolk.
257,457 Tires. D. I. Guvia, 43 Bucareli street, Mexico City, Mexico.

October 27, 1926

257,500 Roller skate with pneumatic tire. M. Stoops, Allistragh, County Armagh, Ireland.
257,584* Pressure cushion for sole laying presses. T. Kallies, 20 Humboldstrasse, Hamburg, Germany.
257,614* Foot arch support. Benedictsens Fodhvilere Ved H. Ziirsen, Dr., 20 Badstuestraede, Copenhagen.
257,688 Packing. G. Spencer, Moulton & Co., Ltd., and C. W. C. Hine, 2, Central Buildings, Westminster.
257,753 Staples. D. S. Salisbury (Representative of S. Stuart-Walker), Hilton Lodge, Reigate, Surrey.

* Not yet accepted.

New Zealand

October 7, 1926

55,586 Vehicle mudguard protector. Daniel Gerald McSweeney, Real avenue, Norman Park, Brisbane, Queensland, Australia.

Germany

435,566 December 13, 1924. Figures, as dolls or parts of dolls. Mittelland-Gummiwerke A.-G., Hannover-Linden.
436,097 April 22, 1925. Protective covering for fuel containers, particularly for flying apparatus, having two rubber layers which envelope the container. Société Electro-Mecanique d'Appareillage pour l'Essence, Bois-Colombes, France. Represented by W. Zimmermann and E. Jourdan, Berlin S. W. 11.
436,233 October 2, 1925. Solid Tire. The Dunlop Rubber Co., Ltd., London. Represented by Dr. R. Wirth, C. Weihe, Dr. H. Weil, M. M. Wirth, of Frankfurt-am-Main, and T. R. Koehnhorn and E. Noll, Berlin S. W. 11.
436,319 July 29, 1925. Bed-rest support for invalids. A.-G. Metzeler & Co., Munich.
436,320 February 28, 1926. Air-cushion seat. Else Egenberger, Rothenburg, o. d. T.

Trade Marks

The United States

Two Kinds of Trademarks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the later act, trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

October 12, 1926, Act of February 20, 1905

219,058 PARATEX—paper for backing rubber films, etc. Westfield River Paper Co., Russell, Massachusetts.
219,065 PEDIGREE CLOTHES—raincoats, etc. Shirek & Hirsch, New York, N. Y.
219,097 Double triangle enclosing the words: "RUBBER SERVICE LABORATORIES"; in the center of the triangle the letter and numerals: "Z-88"—compound used as a vulcanization accelerator in the curing of rubber articles. The Rubber Service Laboratories Co., Akron, Ohio.
219,163 TOP-FIX—liquid preparation for preserving and waterproofing various materials, such as automobile tops, tires and curtains, etc. Stanley Jones doing business as Top-Fix Products Co., Central Falls, Rhode Island.
219,189 ALL WORK—rubber gaskets and packing. The Manhattan Rubber Manufacturing Co., Passaic, New Jersey.
219,230 FAR—earth pigments for coloring ink, rubber, etc. Reichard-Coulston, Inc., New York, N. Y.
219,233 SOFTEX—earth pigments for coloring ink, rubber, etc. Reichard-Coulston, Inc., New York, N. Y.
219,234 AETNA—earth pigments for coloring ink, rubber, etc. Reichard-Coulston, Inc., New York, N. Y.

October 12, 1926, Act of March 19, 1920

219,301 COLGATE—tires. New England Mills Co., Chicago, Illinois.
219,307 BATAVIA—tires and inner tubes. Phelps Tire & Rubber Co., Garfield, New Jersey.

October 19, 1926, Act of February 20, 1905

219,421 Fanciful circle surrounded by the words: "NOVOLITH" and "G. ROCOUR & Co. (N. V.)"—chemical product to be used in rubber manufacture, etc. Ste. Ame. pour la Vent des Blancs de Zinc, G. Rocour & Cie, Eysden, Netherlands.
219,502 Representation of a magician holding a censer from which smoke issues forming an inner tire upon which appears the words: MIRACLE INNER TIRE—inner tires made of spongy rubber. Poplar Bluff Rubber Co., Poplar Bluff, Missouri.
219,571 Representation of coolies at work gathering rubber and weaving fabric—floor covering composed of textile fabric and rubber. The Paratex Corporation, Paterson, New Jersey.
219,617 AGRIPPA—men's garters. George Frost Co., Boston, Massachusetts.
219,667 The word: CONSUMERS, with the last letter lengthened to form a pennant beneath the word; at the bottom of this, the word: MINNEAPOLIS—raincoats, etc. Consumers Merchandise Association, Inc., Minneapolis, Minnesota.
219,668 Representation of a woman seated on a table, at the side of this representation the word: "JAYS"—leather, rubber, fabric and combination shoes, etc. Jays Inc., Boston, Massachusetts.
219,707 LAMARQUE—leather, rubber and fabric composition gloves, etc. Marks Brothers, Newark, New Jersey.

October 19, 1926, Act of March 19, 1920

219,731 FLORENTINE—radio paneling and battery boxes. Hood Rubber Co., Watertown, Massachusetts.

October 26, 1926, Act of February 20, 1905

219,864 CUBBY—baby pants. I. B. Kleinert Rubber Co., New York, N. Y.
219,923 RESTERS—leather, rubber, fabric and felt shoes and slippers. Endicott Johnson Corporation, Endicott, New York.
219,967 LOC-FAST—cold rubber tire patches, liquid radiator cement, etc. Robert R. Cogdell, Fort Worth, Texas.
219,971 SPEED—radio cement, rubber cement and adhesive tube patches. The M. & M. Co., doing business as Automotive Laboratories, Cleveland, Ohio.
220,009 NU-WAY—leather, rubber, fabric and combination shoes. Nu-Way Shoe Co., New York, N. Y.
220,020 REVERTEX—rubber and rubber substitutes for technical purposes, particularly latex in natural, concentrated and dry state. K. D. P., Ltd., London, England.

October 26, 1926, Act of March 19, 1920

220,035 THEODORE HARRINGTON Co.—rubber cutting knives, etc. Hyde Manufacturing Co., Southbridge, Massachusetts.

November 2, 1926, Act of February 20, 1905

220,087 VULC-IN—blowout patches. John R. Buechler, Urbana, Illinois.
220,115 ART-O-GRAVURE—tire covers, etc. The Hinson Manufacturing Co., Waterloo, Iowa.
220,153 MAT-O' GOLD—sponge rubber mats. Frank S. Morgan Co., Berkeley, California.
220,154 Fancy triangle, the lower part of which contains the word: AICOLITE—elastic insulating materials, etc. American Insular Corporation, New Freedom, Pennsylvania.
220,160 Oblong containing the word: STERLINGCEAL—elastic cement for lining walls and ceilings of dry kilns. The Sterling Products Co., Cleveland, Ohio.
220,173 Square with the words: SASSY JANE at the top; at the bottom the word: FOOTWEAR—leather, rubber, fabric and combination shoes, slippers, overshoes and inner soles. George A. Bryant, Greensboro, North Carolina.
220,180 ROLLS-RITE—tires. Federated Rubber Co. of New York, Inc., New York, N. Y.

November 2, 1926, Act of March 19, 1920

220,248 NO-STAIN—rubber cements. The Federal Rubber Co. of Illinois, Chicago, Illinois, and Cudahy, Wisconsin.
220,258 Representation of a shoe on which are superimposed the words: META SUPPORT SHOE, across the word: SUPPORT is a small square containing the word: TARSAL; above the representation are the words: DR. SAKLAD'S—boots and shoes of leather, rubber, canvas, etc. William Saklad, Boston, Massachusetts.

November 9, 1926, Act of February 20, 1905

220,424 Representation of a garter in the center of which is the representation of a Maltese cross and the words: GOLD CROSS GARTER BOSS—garters. Albert J. Carpenter, doing business as Gold Cross Garter Co., Portland, Maine.
220,425 Representation of a tree, across the trunk the words: MEYER GREENTREE—raincoats, leather, rubber, fabric and combination shoes, etc. Meyer Greentree, Richmond, Virginia.
220,426 Shadow representation of a tree across the top of which is the word: SHADOWEIGHT; at the side the word: GREENTREE'S—raincoats, rubber, leather, fabric and combination shoes, etc. Meyer Greentree, Richmond, Virginia.
220,432 RADIO—tires and inner tubes. The B. F. Goodrich Co., New York, N. Y.
220,487 Oblong upon which is superimposed the figure of a man above whom are the words: LASTIC WEB—narrow elastic fabrics. Thomas Henry & Sons, Inc., doing business as The Lastic-Web Co., Philadelphia, Pennsylvania.
220,498 BUNKER HILL—leather, fabric and rubber boots, shoes and slippers. P. Cogan & Son Co., Stoneham, Massachusetts.
220,514 ZEPLEN—pneumatic tires. Semitire Co., Inc., Seattle, Washington.
220,567 STRAW—rubber hoof pads. Dryden Rubber Co., Chicago, Illinois.

November 9, 1926, Act of March 19, 1920

220,604 GATES FITSALL FLAP—tire flaps. The Gates Rubber Co., Denver, Colorado.
220,610 HICKS—tires and inner tubes. Hicks Rubber Co., Waco, Texas.

220,617 GRIP-TITE—tire flaps and fan belts. The Better Tires Co., Chicago, Illinois.

220,619 BETTERWEAVE—brake, transmission and hood linings. The Better Tires Co., Chicago, Illinois.

The Dominion of Canada

Registered

October 12, 1926

40,599 Word: "ANTISEP"—surgical rubber goods, aprons, dress shields, etc. Sterling Rubber Co., Ltd., Guelph, Ontario.

40,611 Word: "ZIPPS"—boots, shoes, overshoes, inner soles, patches, etc. Canadian Goodrich Co., Ltd., Kitchener, Ontario.

40,616 Letters: "G P G" in distinctive arrangement within concentric circles; between the circles are the words: "GUTTA PERCHA AND RUBBER, LIMITED, TORONTO, CANADA"—belting, hose, diaphragms, tubes, footwear, etc. Gutta Percha & Rubber, Ltd., Toronto, Ontario.

October 19, 1926

40,640 Name: "LA LICORNE" displayed on an annular band or belt, in the center of which appears the representation of a unicorn—automobile accessories. Compagnie Francaise des Automobiles Corre la Licorne, 37 rue de Villiers à Levallois-Perret (Seine), France.

The United Kingdom

October 6, 1926

471,124 TRYMMOR—waterproof garments. John Mort, 18, Wilmington Gardens, Faircross, New Barking, Essex.

472,413 KALIBOND—rubber insulated electric cables. Callender's Cable & Construction Co., Ltd., Hamilton House, Victoria Embankment, London, E. C. 4.

October 13, 1926

472,683 SKELPIE—golf balls, etc. Donaldson Manufacturing Co., Ltd., 1a, Blythswood Square, Glasgow.

472,722 Representation of a wheel from the sides of which wings protrude, at the top of the representation the words: "THE FLYING WHEEL"—elastic web, cords, sponge bags, hot water bottles and dress shields. I. & R. Morley, 18, Wood street, London, E. C. 2.

472,883 DEFIANCE—boot and shoe soles and heels. Sam Freedman, 113, Cable street, St. George's, London, E. 1.

473,105 JAGUAR—engine and machine packing. The Beldam Packing & Rubber Co., Ltd., 29 Gracechurch street, London, E. C. 3.

473,106 MOOSE—engine and machine packing. The Beldam Packing & Rubber Co., Ltd., 29 Gracechurch street, London, E. C. 3.

473,107 PUMA—engine and machine packing. The Beldam Packing & Rubber Co., Ltd., 29, Gracechurch street, London, E. C. 3.

473,108 CENTAUR—engine and machine packing. The Beldam Packing & Rubber Co., Ltd., 29, Gracechurch street, London, E. C. 3.

October 20, 1926

472,764 Oblong containing the words: "SURF MAID" and "TRADE MARK"—bathing caps. H. & E. Woods, 23, Paper street, London, E. C. 1.

473,141 DISMAL DESMOND—goods manufactured from rubber and gutta percha. Dean's Rag Book Co., Ltd., 2-14, Newington Butts, London, S. E. 1.

October 27, 1926

467,239 WEFCO—goods manufactured from rubber and gutta percha. Watts, Fincham & Co., Ltd., 22, Billiter street, London, E. C. 3.

471,809 ECONOMATIC—retreaded outer covers, and repaired outer covers and inner tubes for pneumatic tires. Sydney Edyvean Walker, trading as The Sleaford Electric Supply & Battery Service, 89, Southgate, Sleaford, Lincolnshire.

473,209 ROMAC—goods manufactured from rubber and gutta percha. Romac Motor Accessories, Ltd., Romac Works, The Hyde, Hendon, London, N. W. 9.

473,210 ROMAC—repair outfits for tires, hose, etc. Romac Motor Accessories, Ltd., Romac Works, The Hyde, Hendon, London.

473,540 HOPSWEPE—tubular hose. The Leyland & Birmingham Rubber Co., Ltd., 24-30, Duke street, Aldgate, London, E. C. 3.

New Zealand

September 23, 1926

23,196 Shield in the center of which is the letter: "S," beneath the shield the word: "KEYSTONE"—boots and shoes. S. Stone & Co., Ltd., Queen and Darby streets, Auckland.

24,113 ROMAC—tire repair outfits. Romac Motor Accessories, Ltd., The Hyde, Edgware Road, London, N. W. 9, England.

October 7, 1926

23,612 The letters: "W W"—surgical or curative instruments. William Warne & Co., Ltd., 29, Gresham street, London, England.

23,613 The letters: "W W"—goods manufactured from rubber or gutta percha. William Warne & Co., Ltd., 29, Gresham street, London, England.

Designs

The United States

71,243 Sheet material for shoe soles and heels. Term 7 years. Edward F. Greene, New York, N. Y., assignor to Revere Rubber Co., Chelsea, Massachusetts.

71,275 Automobile tire. Term 14 years. Harry C. Hower, Chicago, Illinois.

71,338 Shoe sole and heel. Term 3½ years. Laurence M. Oakley, Trenton, New Jersey.

71,380 Automobile tire casing. Term 7 years. Louis L. Hinsch, assignor to The Admiral Tire & Rubber Co., both of Coshocton, Ohio.

71,452 Boot. Term 14 years. Edgar S. Bott and Arthur S. Funk, assignor to La Crosse Rubber Mills Co., all of La Crosse, Wisconsin.

71,461 Tire tread or similar article. Term 3½ years. Ralph W. Hutchens, assignor to Gillette Rubber Co., both of Eau Claire, Wisconsin.

The Dominion of Canada

7,274 Tires. Dominion Rubber Co., Ltd., Montreal, Quebec.

7,275 Tires. Dominion Rubber Co., Ltd., Montreal, Quebec.

Germany

961,320 July 26, 1926. Rubber surface for card players. Georg Brandau, Am steinernen Kreuz **15, Bremen.**

961,335 August 6, 1926. Sponge rubber drip **pad with inscriptions. Herbert** Lindemann, Königstrasse 52, Wandsbek.

961,405 August 4, 1926. Rubber protective cover. Eduard Hessel, Schloss-strasse 115, Berlin-Steglitz.

961,463 June 17, 1926. Sponge rubber cushion for furniture brushes and dusters. Otto Lotz, Löwenstrasse 3, Elberfeld.

962,178. August 11, 1926. Toy figures of multicolored sheet rubber. Gummiwerk Union Carl O. Witthauer, Neustadt b. Koburg.

962,196. August 31, 1926. Rubber biscuit. "Biback" Friedrichsdorfer Zwiebackfabrik vorm. Sauer & Hillerbrand G. m. b. H., Bad Hamburg.

962,262 August 25, 1926. Hard rubber short circuit preventors for multiple battery or current connections for radios and other electro-technical apparatus. Firma Robert Karst, Berlin.

962,518 September 2, 1926. Rubber tube conduit. Hackethal-Draht-und-Kabelwerke A.-G., Hannover.

962,607 September 3, 1926. Rubber suction cup with cushion edge for milking machine. Caspar Schwegmann, Ostbevern i. W.

962,609 September 3, 1926. Rubber cushion. Herm. Wilde, Bad Oeynhausen.

962,726 July 13, 1926. Canvas gymnastic shoe with imitation crêpe sole. Hanauer Gummischuh-fabrik Westheimer & Co., Hanau, a. M.

962,749 August 7, 1926. Vehicle tube consisting of individual cells. Eugen Müller, Ernstthal a. Rennsteig, Th.

963,047 August 28, 1926. Rubber stocking protector combined with a pull-over shoe. Hans Engel, Geisbergstrasse 23, Berlin.

963,048 August 28, 1926. Rubber gaiters with foot part in one piece. Hans Engel, Geisbergstrasse 23, Berlin.

963,101 August 20, 1926. Mat of soft rubber for washbasins, soup tureens and the like. Haguma Hannoversche Gummiabsatz-Fabrik, G. m. b. H., Hannover-Ricklingen.

963,904 September 10, 1926. Beer mat of sponge rubber. Ernst Waldemar Schabram, Sandweg 26, Hamburg.

963,945 August 2, 1926. Sponge rubber bib for children. Victor Reichenberger, Nürnberg.

963,950 August 9, 1926. Vehicle casing with an insert. Karl Brandmann, Sonnenstrasse 88, Münster i. W.

964,011 June 11, 1926. Rubber toy with designs which become more prominent when it is inflated. "Vulcan" Gummiwarenfabrik Weiss & Bessler, Leipzig-Lindenau.

964,077 September 13, 1926. Stamp-moistener and rubber jacket. Hannoversche Gummiwerke "Excelsior" A.-G., Hannover-Limmer.

964,117 July 20, 1926. Horse collar stuffed with air-filled rubber. Heinrich Gerdsmann and Fritz Glochschei, Dinslaken.

964,228 September 1, 1926. Highly elastic solid tire. Carl A. Weidner, Luisenstrasse 4, Mannheim-Neckarau.

964,321 September 4, 1926. Patience game. Nassauische Gummiwaren-Industrie Ebhardt & Engel, Frankfurt-a-M.

964,349 September 23, 1926. Rubber stocking protector. Hans Friedrichsen, Arnkielstrasse 4, Altona a. d. Elbe.

964,396 September 13, 1926. Solid rubber shoe inlay. Ferdinand Derlam, Adlerflychtplatz 86, Frankfurt-am-Main.

964,828 September 6, 1926. Cream whipper with removable bottom and rubber packing-ring. Gottfried Quitmann, Lünen an-der-Lippe.

Prints

The United States

9,171 Davol Dollies. Rubber goods. Davol Rubber Co., Providence, Rhode Island. Published September 2, 1926.

9,220 Say It with Rubber Stamps. Stamps. Louis E. Parsons, doing business as Excella Rubber Stamp Service, Chicago, Illinois.

The Market for Rubber Scrap

New York

The demand for rubber scrap fell off somewhat during November. Fine collections will soon show the usual decline in tonnage that prevails during the winter months. Summer collections provided ample stocks to meet heavy reclaiming needs. The entire list of scrap grades shows change in quotations over a month ago, chiefly in minor declines except in tires where greater movements downward have occurred, and in white grades which have advanced.

BOOTS AND SHOES. Prices have declined on all grades. The consuming demand has fallen off in marked degree.

INNER TUBES. Stocks and collections are of good volume. There is a good demand for both No. 1 and No. 2. Prices have been reduced about 1/8 cent on all grades.

TIRES. Collections will continue to hold up in volume until curtailed by winter weather. At current quotations tire grades offer good values.

Quotations for Carload Lots

November 24, 1926

Boots and Shoes			
Boots and shoes, black	lb.	$0.02⅛ @	$0.02¼
Red and white	lb.	.01⅛ @	.01¼
Trimmed arctics, black	lb.	.01⅛ @	.01¼
Untrimmed arctics	lb.	.00¾ @	.00⅞
Tennis shoes and soles	lb.	.01 @	.01⅛
Hard Rubber			
No. 1 hard rubber	lb.	.13 @	.14
Battery jars, black compound	lb.	.01⅝ @	.01¾
Inner Tubes			
No. 1, floating	lb.	.09¾ @	.09⅞
No. 2, compounded	lb.	.07½ @	.07¾
Red	lb.	.06⅞ @	.07⅛
Mixed tubes	lb.	.06⅝ @	.06⅞
Mechanicals			
Mixed black scrap	lb.	.01 @	.01⅛
Heels	lb.	.00¾ @	.00⅞
Hose, air-brake	ton	29.00 @	32.00
regular	ton	21.00 @	22.00
No. 1 red	lb.	.02⅛ @	.02¼
No. 2 red	lb.	.01⅝ @	.01¾
Red packing	lb.	.01⅛ @	.01¼
White, druggists' sundries	lb.	.03¼ @	.03¾
Mechanical	lb.	.01⅜ @	.01½
Tires			
Pneumatic Standard—			
Mixed auto tires with beads	ton	26.00	@27.00
Beadless	ton	35.00	@36.00
White auto tires with beads	ton	43.00	@44.00
Beadless	ton	53.00	@54.00
Mixed auto peelings	ton	36.00	@38.00
Solid—			
Mixed motor truck, clean	ton	36.00	@37.00

The following scrap rubber dealers are listed in our Buyers' Directory. For complete information see Index of Advertisers on Page 114.

Birkenstein, S., & Sons, Chicago, Illinois.
Chalfin, Joseph, & Co., Inc., New York, N. Y.
Cummings, Wm. H., & Sons, New York, N. Y.
Muehlstein, H., & Co., Inc., New York, N. Y.
Norton, M., & Co., Medford, Massachusetts.
Schnurmann, J., London, England.
Weber, Hermann, Hoboken, New Jersey.

Reclaimed Rubber

New York

Reclaiming plants continue to operate nearly or quite to capacity although there is some seasonal falling off in demand. This permits renewal of stocks in preparation of the heavier call for reclaim expected soon after the beginning of 1927. Reclaims are established in the estimation of rubber technologists and tire manufacturers as contributing dependable rubber value and economizing crude rubber in a definite and large degree.

Approximately half the list of standard grades are quoted from one-half to one cent below the prices named a month ago. This is due somewhat to the seasonal decline of demand and to the generally lower prices for rubber scrap now quoted. Standard black and gray tire reclaims remain unchanged.

New York Quotations

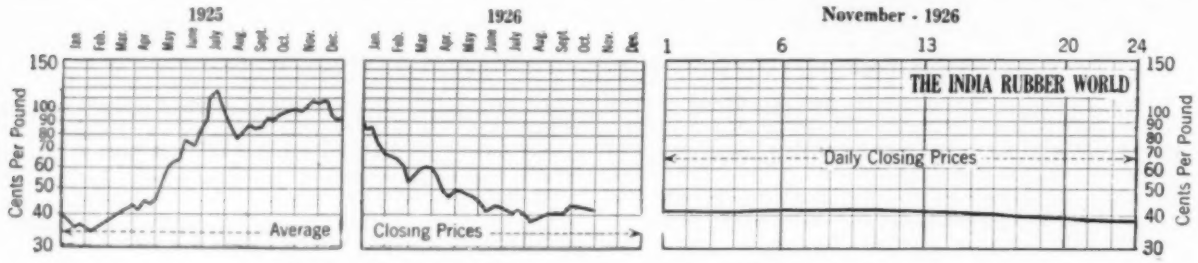
November 24, 1926

Auto Tire	Specific Gravity	Price Per Pound	
Black	1.21	$0.09 @	$0.09½
Black, washed	1.18	.10¾ @	.11¼
Black selected tires	1.20	.10½ @	.11
Dark gray	1.35	.12 @	.14
Light gray	1.38	.14 @	.14½
White	1.40	.17 @	.17½
High Tensile Black			
Super-reclaim, No. 1	1.20	.19 @	.20
No. 2	1.20	.16 @	.17
Shoe			
Unwashed	1.60	.08¾ @	.09
Washed	1.50	.11 @	.11½
Tube			
No. 1	1.00	.18½ @	.20
No. 2	1.18	.15½ @	.16½
Miscellaneous			
High grade, red	1.35	.16 @	.17
Truck tire, heavy gravity	1.55	.08¾ @	.09
Truck tire, light gravity	1.40	.09¾ @	.10¼
Mechanical blends	1.60	.08 @	.09

BRITISH EXPORTS OF AUTOMOBILE TIRES DURING THE FIRST NINE months of the present year numbered 626,392, value £1,947,422, as compared with corresponding shipments for the nine months of 1925 of 650,731 casings, value £1,643,826. The leading markets for these goods in 1926 were: British India, Australia, British Malaya, Irish Free State, New Zealand, British South Africa, Brazil, Argentina and Denmark.

The following reclaimed rubber dealers are listed in our Buyers' Directory. For complete information see Index of Advertisers on Page 114.

Appleton Rubber Co., Franklin, Massachusetts.
Bloomingdale Rubber Co., New York, N. Y.
Clapp, E. H., Rubber Co., Boston, Massachusetts.
Defiance Rubber Co., Defiance, Ohio.
Manhattan Rubber Manufacturing Co., Passaic, New Jersey.
Nearpara Rubber Co., Trenton, New Jersey.
New Jersey Rubber Co., Lambertville, New Jersey.
Pequanoc Rubber Co., Butler, New Jersey.
Philadelphia Rubber Works, Philadelphia, Pennsylvania.
Rubber Regenerating Co., Naugatuck, Connecticut.
Somerset Rubber Reclaiming Works, New Brunswick, New Jersey.
U. S. Rubber Reclaiming Co., Inc., New York, N. Y.
Vulcan Recovery Co., Trenton, New Jersey.
Xylos Rubber Co., Akron, Ohio.



Ratio Graph of New York Closing Prices of Spot Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York Open Market

THE rubber market for the past month was extremely weak and showed greater dullness than for many months, due to the waiting attitude of dealers and consumers in relation to the ruling on unused coupons. Spot prices slowly and steadily declined between October 23 and November 22 from 42¾ cents to 37½ cents, recovering on November 24 to 38½ cents.

The statistical position indicates that prices are liable to decline for the next 2 or 3 months although the object of British restriction is to stabilize the market at higher levels. Late London cables indicate that an increase in price is looked for when American consuming demand advances. The month of November yielded a fair scattered business only, factories holding back and not buying other than spot and nearby because of the approach of the inventorying period.

One very real cause of dullness is the fact that for many weeks the world's visible stocks of rubber have been increasing. This has eliminated all anxiety as to ample supplies for several months to come. The situation is complicated, however, by an element of danger inherent in the uncertainty as to what decision will be rendered concerning revision of the standard production per acre to be allowed. In other words, at present there is no limit of production per acre set for the large plantations while that for small plantations may not exceed 400 pounds. In case a drastic reduction in this respect is set for all plantations the 20 per cent restriction now in effect may be seriously felt.

The fact that the factories have taken no interest in future positions and confine their purchases to spot and nearby rubber has made the situation extremely difficult for the dealers who expect that business will be dull the balance of the year.

The market for the month opened with a waiting attitude on the part of dealers based on the uncertainty of the unused coupon matter. Following the election holiday there was a slight revival in business because of a decline in the market. As prices recovered factory buying fell off. Higher London quotations on shipments from the Far East served also as a barrier to business.

Announcement of a cut in tire prices caused a slight reaction upward in rubber in the expectation of the influence on demand. In general the price situation was weakened by the increase of London stocks and the falling off in consumption. The latter is due to seasonal decline in tire production and the growing use of reclaims.

Toward the close of the third week in November strong resistance developed against a further decline in prices which became increasingly effective early in the fourth week, advancing the price from 37½ cents on November 22 to 38½ cents on November 24.

On the whole trading for the month was uneventful and dull. There were no transactions in wild rubbers of the lower grades. Parás ruled very quiet. Balatas were weak owing to the inactivity of manufacturers of balata goods, especially in England where the coal strike has exerted a baneful influence on all industry.

Importations of all grades in October were 337,952 tons, compared with 309,268 tons one year ago. Plantation arrivals for October were 25,872 tons, compared with 31,450 tons one year ago. Total importations of plantation rubber for ten months ended October 31 were 316,847 tons, compared with 287,694 tons for the corresponding period of 1925. Total importations of all grades of rubber for the ten months ended October 31 were 337,952 tons, compared with 309,268 tons for the corresponding period of 1925. Arrivals of crude rubber November 1 to 20 were 27,640 tons. Arrivals for the full month of November are estimated at 36,000 tons, compared with 28,144 tons for October.

RUBBER AFLOAT TO THE UNITED STATES

(Figures in Long Tons)

Week Ended	Brt. Malaya	Ceylon	E. Indies	London	Total
October 30	4,030	920	831	248	6,029
November 6	5,513	893	1,956	101	8,463
November 13	4,578	803	516	1,401	7,298
November 20	5,203	520	1,545	318	7,586

Gross exports of crude rubber from Malaya in October totaled 39,367 long tons and gross imports into Malaya, including wet rubber, 15,203 long tons. Dealers' stocks in Singapore and Penang September 30 amounted to 26,000 long tons.

New York Spot Closing Rubber Prices—Cents Per Pound

PLANTATIONS	October, 1926						November, 1926														
Sheet	25	26	27	28	29	30	1	2*	3	4	5	6	8	9	10	11	12	13	15	16	17	18	19	20
Ribbed smoked	42¾	42½	42¼	42½	42¼	42¼	41½	...	41¾	41¾	41½	41¾	41½	41¾	41⅞	41⅞	41⅝	41⅜	41⅛	40⅝	40⅜	39⅝	39	39
Crêpe																								
First latex	42¾	42¼	42¼	42½	42¼	42¼	41½	...	41½	41¾	41½	41¾	41½	41¾	41⅞	41⅞	41⅝	41⅜	41⅛	40⅝	40⅜	39⅝	39	39
No. 2 blanket	41	40½	40¼	40¼	40½	40¼	39½	...	39¼	39	39¼	39½	39½	39⅜	39⅝	39⅜	39¼	38¾	38¼	38⅛	38	37⅝	37⅛	37⅛
No. 3 blanket	40	39¼	39¼	39½	39¾	39¾	39	...	38¼	38½	38¼	39	39	38⅞	39⅛	38⅞	38⅝	38⅛	38	37⅝	37⅛	37½	36⅝	36¾
No. 4 blanket	39¼	38¾	38¼	38¼	38¾	38¾	38¼	...	37¾	37¾	38	38	38¼	37⅞	38⅛	38⅛	38	37¾	37½	37⅛	36⅞	36½	35⅝	35⅞
Thin clean brown	40	39¼	39¼	39½	39½	39½	38¾	...	38¼	38½	38⅜	39	39	38⅞	38⅞	38⅞	38½	38¼	38⅛	37⅛	37½	37⅛	36⅝	36¾
Rolled brown	36¾	36¼	36	36	36	36	35	...	35	35	35⅛	35½	35½	35½	35⅝	35⅝	35⅜	35	34¾	34⅛	33⅞	33½	33⅛	33⅛
Off latex	42¼	42	41¾	42	41¾	42	41	...	40¾	40½	40¾	41	41	41⅛	41⅜	41¼	41	40¾	40⅜	40⅛	39⅝	39⅛	38⅜	38½

* Holiday.

New York Quotations

Following are the New York spot and future rubber quotations for one year ago, one month ago, and November 24, the current date:

	November 24, 1925		October 25, 1926		November 24, 1926	
Plantation Hevea						
Rubber latex (Hevea)..gal.	$3.66	@	$1.75	@	$1.50	@
CREPE						
First latex, spot	1.13	@1.14	.42¼	@.43¾	.38½	@
Dec.	1.11	@1.12	.43	@.43¼	.38½	@
Jan.-Mar	1.10	@1.12	.43½	@.44¾	.39	@
Apr.-June	1.05	@1.06	.45	@	.40	@
Off latex, spot	1.03	@1.04	.41¾	@	.38	@
Amber No. 2, spot	1.08	@1.09	.41	@	.37½	@
Dec.	1.07	@1.08	.41	@.41¼	.37½	@
Jan.-Mar.	1.08	@1.10	.41½	@	.38	@
Apr.-June	1.03	@1.04	.42	@	.39	@
Amber No. 3, spot	1.07	@1.08	.40½	@	.36½	@
Brown, thin, clean	1.07	@1.08	.40	@.40½	.36½	@
Brown specky	1.05	@1.06	.39	@.40	.36	@
Brown, roll	1.04	@	.36½	@.37	.33	@
Sole crêpe	1.16	@	.70	@	.60	@
SHEET						
Ribbed, smoked spot	1.12	@1.13	.42½	@.42¾	.38½	@
Dec.	1.09	@1.10	.43⅛	@	.38½	@
Jan.-Mar.	1.10	@1.10½	.44	@.44¼	.39	@
Apr.-June	1.05	@1.06	.44½	@.45	.40	@
East Indian						
PONTIANAK						
Banjermassin		@.16	.17½	@	.15	@.17
Pressed block		@.30	.27½	@	.26½	@.28
Sarawak		@.16	.17¼	@	.15	@
South American						
PARAS						
Upriver, fine	1.01	@1.02	.37½	@	.34	@
Upriver, fine	*1.26	@	.52½	@	*.46	@
Upriver, medium	.95	@.96	.30	@	.30	@
Upriver, coarse	.76	@.77	.28	@	.24½	@
Upriver, coarse	*.97	@	*.41	@	*.36	@
Islands, fine	.81	@.82	.34	@	.28	@
Islands, fine	*1.12	@	*.50	@	*.41	@
Acre, Bolivian, fine	1.02	@1.03	.38	@	.34½	@
Acre, Bolivian, fine	*1.28	@	*.53	@	*.46	@
Beni, Bolivian	1.02	@1.03	.38½	@	.34½	@
Madeira, fine	1.02	@1.03	.39	@	.34¼	@
Peruvian, fine	.98	@.99	.36	@	.33	@
Tapajos, fine		@	.35	@	.31	@
South American						
CAUCHO						
Upper Caucho ball	.78	@.79	.28½	@	.25	@
Upper Caucho ball	*.98	@	*.42	@	*.36	@
Lower Caucho ball	.75	@	.25	@	.21	@
Maniçobas						
Ceará negro heads	.60	@	†.32	@	.32	@
Ceará scrap	.35	@	.16	@	.16	@
Maniçoba, 30% guar	.55	@	.33	@	.33	@
Mangabeira, thin sheet	.48	@	.35	@	.35	@
Centrals						
Central scrap	.75	@	.28	@	.20½	@
Central wet sheet	.62	@	.22	@	.15	@
Corinto scrap	.75	@	.28	@	.28	@
Esmeralda sausage	.75	@	.28	@	.20½	@
Guayule						
Duro, washed and dried	.78	@	.33½	@	.31½	@
Leon, washed and dried		@	.31	@		@
Gutta Percha						
Gutta Siak	.31	@	.33	@	.31	@
Gutta Soh	.30	@	.34¼	@		@
Red Macassar	3.00	@	2.80	@	2.90	@
Balata						
Block, Ciudad Bolivar	.65	@	.48	@.50	.42	@.44
Colombia	.56	@	.42	@	.38	@.39
Panama		@	.42	@	.39	@
Surinam, sheet	.76	@	.76	@	.68	@.71
amber	.82	@	.81	@	.70	@
Chicle						
Honduras	‡.54	@	‡.56	@.60	‡.56	@.60
Yucatan, fine	‡.55	@	‡.56	@.60	‡.56	@.60

*Washed and dried crêpe. Shipment from Brazil.
†Nominal. ‡Duty Paid.

Low and High New York Spot Prices

	November					
PLANTATIONS	1926*		1925		1924	
First latex crêpe	$0.38¾	@$0.42	$0.99	@$1.14	$0.33½	@$0.35
Smoked sheet, ribbed	.38½	@ .42	.98	@ 1.13	.33¾	@ .35
PARAS						
Upriver, fine	.32½	@ .38	.89	@ .96	.32½	@ .34
Upriver, coarse	.22	@ .28	.60	@ .70	.22	@ .24
Islands, fine	.24	@ .34	.76	@ .89	.29	@ .31
Cametá			.45	@ .60	.19	@ .21

*Figured to November 24, 1926.

London

The average London price for spot rubber smoked sheets for the quarter ended October 31 was 20.199 pence and entailed a 20 per cent reduction in the exportable allowance of plantation rubber for the current quarter. As this condition was foreseen there was no reaction from the downward price trend, which continued its course. Sellers price November 1 was 21⅛ pence and on November 20 was 19⅝ pence. On November 24 spot ribs were steady at 19¼ pence. London market opinion holds that prices are not destined to advance materially within the next few weeks or at least not until American consumers map out their tire production for the first quarter of 1927.

During the week of October 30 fluctuations in spot price of ribs were slight and easy at 21 to 21⅛ pence, awaiting official pronouncement on restriction changes. When 20 per cent reduction was announced the fact had been so completely discounted that all positions remained unchanged.

For the week ended November 6 market conditions were generally quiet and weak, prices declining during the first half 1⅛ pence to 20 pence in two days of heavy trading. This was followed by good spot buying and prices advanced to 20⅝ pence, with the situation in strong hands.

During the week ended November 13 the market was inactive. The price was very steady, fluctuating only ⅛ pence either way. The week closed with a dull but steady undertone, with prices around 20⅝ pence, the same as one week before.

The week of November 20 was marked by daily declining prices, opening weak at 20⅛ pence and closing in much the same condition at 19⅝ pence. At mid-week London prices were above parity with those in New York.

London stocks on November 20 were 3,474 tons more than on October 23. The average weekly gain was not as great as in the preceding month. The weekly record was as follows: October 30, 42,141 tons; November 6, 43,045 tons; November 13, 43,299 tons, and November 20, 44,553 tons.

Singapore

The Singapore market closely followed those of London and New York, being generally quiet with prices declining. The price of spot on November 1 was 20¼ pence, and from that level descended to 18¾ pence on November 20. There was a rally in price from the otherwise steady decline on November 8 when the price advanced from 19¾ pence to 20¾ pence. This advance, however, could not be sustained. The month's business was interrupted by a group of holidays, and on November 20 the Singapore market was down ⅛ pence on all positions and not inclined to follow the declines of the Western markets.

DURING THE TWELVE MONTHS ENDED JUNE, 1926, THE UNITED States exported 11,598,306 pounds of reclaimed rubber, value $1,373,344, and 27,018,400 pounds of scrap and old rubber, value $1,764,503.

EXPORTS OF AUTOMOBILE CASINGS BY AMERICAN MANUFACTURERS during the twelve months ended June, 1926, numbered 1,556,753, value $24,709,578. Figures for inner tubes were: 1,333,618, value $3,391,194.

AMERICAN EXPORTS OF RUBBER BELTING FOR THE TWELVE MONTHS ended June, 1926, totaled 4,119,992 pounds, value $2,659,167. Figures for rubber hose were: 5,989,385 pounds, value $2,458,181. Shipments of packing included 2,176,275 pounds, value $1,066,188.

SHIPMENTS OF RUBBER BOOTS AND SHOES FROM THE UNITED Kingdom have represented important gains in recent years according to the following statistics: 1922, 1,794,000 pairs exported; 1923, 2,681,000 pairs; 1924, 3,113,000 pairs; and 1925, 3,380,000 pairs.

The Rubber Exchange of New York, Inc.

TRADING on the Rubber Exchange from October 25 to November 23, inclusive, resulted in the sale of 4,963 contracts, equivalent to 12,407½ long tons, as compared to 4,515 contracts and 11,287½ tons the previous month. This increase was substantial but much less than in the month previous.

Consumption of rubber by American rubber companies is reported to have been 3,064 tons less in October than in September but 1,722 tons in excess of the October imports. The increase of the world's stocks in October was 19,200 tons. The statistical position of stocks, consumption, and the validity of the unused coupons of last quarter point to ample supplies regardless of the 20 per cent restriction applying to this quarter's exportable allowance.

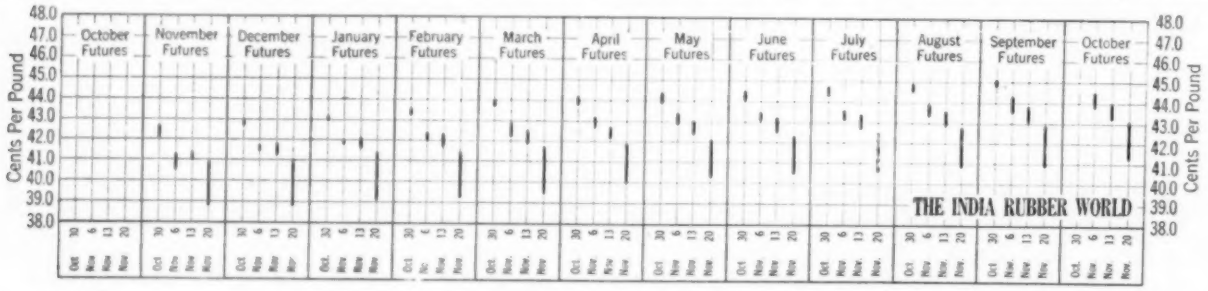
The following statement from Henderson, Helm & Co., New York, explains the situation in regard to the unused coupons:

All existing rubber export coupons remain valid. Those issued up to February 1 will likewise have no time limit for usage. Coupons issued after February 1 in Ceylon will be valid for 4 months after date. Coupons issued on and after February 1 in Malaya will be valid for 6 months after date. For small estates in Malaya there will be no time limit. The standard production is to be based on each estate's demonstrated normal productive capacity.

As in the case of the New York open market and the London market the past month on the Rubber Exchange has shown considerable dullness with traders, rather than consumers, interested. This condition was particularly noticeable during the last week of October.

The first week of November the London market influence proved a strong factor in producing dull and featureless sessions. The second week in November was also inactive. Prices slumped decidedly with no indication of immediate recovery. However, in the following week there was better activity although the price continued to decline, followed from November 22 to 24 by a sharp rally of 1½ cents a pound.

New York Rubber Exchange—High and Low Monthly Futures—Cents Per Pound—October 2 to October 23, 1926



The Rubber Exchange of New York, Inc.

Daily Market Futures—Ribbed Smoked Sheets—Closing Prices—Cents Per Pound

1926	October, 1926						November, 1926																						
	25	26	27	28	29	30	1	2*	3	4	5	6	8	9	10	11	12	13	15	16	17	18	19	20	22	23	24	25	26*	27
Oct.	42 1	42.2	....	....	....	....	....	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...	...	...	...	...	...
Nov.	42.4	42.7	42.0	42.3	42.3	42.3	41.3	...	41.2	40.6	41.1	41.3	41.4	41.3	41.4	41.3	41.3	41.0	40.9	40.4	40.2	39.4	38.8	38.8	...	...	...	...	...	...
Dec.	43.0	43.0	42.7	42.8	42.9	42.8	41.7	...	41.6	41.5	41.6	41.7	41.8	41.7	41.8	41.7	41.5	41.3	41.0	40.5	40.1	39.5	38.9	38.8	...	...	...	...	...	...
1927																														
Jan.	43.0	43.3	43.1	43.2	43.2	43.1	41.9	...	41.8	41.9	41.9	42.0	42.1	42.1	42.1	42.0	41.7	41.6	41.4	40.7	40.4	39.8	39.1	39.2	...	...	...	...	...	...
Feb.	43.3	43.5	43.3	43.5	43.6	43.3	42.4	...	42.1	42.0	42.1	42.3	42.1	42.3	42.2	42.0	41.9	41.7	41.4	40.8	40.7	40.0	39.3	39.5	...	...	...	...	...	...
Mar.	43.7	44.0	43.7	44.0	44.0	43.8	42.9	...	42.4	42.3	42.4	42.4	42.4	42.5	42.5	42.4	42.1	41.9	41.7	41.3	40.9	40.2	39.6	39.5	...	...	...	...	...	...
April	43.8	44.1	43.9	44.1	44.2	43.9	43.2	...	42.8	42.7	42.7	42.7	42.6	42.7	42.7	42.6	42.4	42.2	41.9	41.5	41.2	40.7	40.0	40.2	...	...	...	...	...	...
May	43.9	44.2	44.0	44.3	44.3	44.4	43.4	...	43.2	43.0	42.9	42.9	43.0	42.9	42.8	42.7	42.6	42.4	42.1	41.5	41.4	41.0	40.3	40.4	...	...	...	...	...	...
June	44.1	44.4	44.2	44.4	44.5	44.5	43.5	...	43.4	43.2	43.1	43.1	43.2	43.2	43.1	42.8	42.8	42.5	42.3	41.6	41.6	41.2	40.5	40.5	...	...	...	...	...	...
July	44.4	44.7	44.4	44.6	44.6	44.5	43.6	...	43.5	43.3	43.2	43.3	43.4	43.4	43.2	43.1	43.0	42.7	42.5	41.9	41.7	41.4	40.6	40.6	...	...	...	...	...	...
Aug.	44 6	44.9	44.6	44.8	44.8	44.7	43.9	...	43.7	43.6	43.4	43.5	43.5	43.6	43.4	43.3	43.2	42.9	42.7	42.1	41.9	41.6	40.8	40.9	...	...	...	...	...	...
Sept.	44.8	45.1	44.8	45.0	45.0	44.9	44.3	...	43.9	43.8	43.6	43.7	43.6	43.8	43.6	43.5	43.4	43.1	42.9	42.3	42.1	41.8	40.9	41.1	...	...	...	...	...	...
Oct.	...	...	...	...	...	...	44.5	...	44.1	44.0	43.8	43.9	43.8	44.0	43.8	43.7	43.6	43.3	43.1	42.5	42.3	42.0	41.2	41.3	...	...	...	...	...	...

*Holiday.

The following crude rubber importers, dealers, and brokers are listed in our Buyers' Directory. For complete information see Index of Advertisers on Page 114.

Araujo, J. G. & Co., Manaos, Brazil.
Astlett, H. A., & Co., New York, N. Y.
Baird Rubber & Trading Co., New York, N. Y.
Buckleton & Co., Ltd., Liverpool, England.
Chalfin, Joseph, & Co., Inc., New York, N. Y.
Chipman, R. L., New York, N. Y.
Chong, Peter. & Co., Singapore, SS.
Dunbar, F. W., & Co., Inc., New York, N. Y.
Dunbar, J. Frank, Co., Inc., New York, N. Y.
Hankin, George, & Co., London, England.
Hardy, R. S., Co., New York, N. Y.
Henderson Brothers & Co., Inc., New York, N. Y.
Hentz, H. & Co., New York, N. Y.
Hirsch, Adolph, & Co., New York, N. Y.
Jacoby, Ernest, Boston, Massachusetts.
Littlejohn & Co., Inc., New York, N. Y.
Muehlstein, H. & Co., New York, N. Y.
Nordmann, Rossmann & Co., Hamburg, Germany.
Wilson, Charles T., Co., Inc., New York, N. Y.

The Market for Compounding Ingredients

New York

ALTHOUGH there has been some seasonal decrease in the output of tires and mechanical rubber goods no cessation of demand is yet apparent by the manufacturers and dealers in compounding ingredients. Prices have been seriously cut in the case of several products such as clays, whiting, etc. Certain accelerators have been the object of competitive attack in special localities but price cutting has not become general.

ACCELERATORS. The trade in accelerators of all types is very active. The high speed accelerators are increasing in popularity. A new type is now seeking the favor of the rubber technologist. It is classed as a semi-ultra type. It reacts less sharply than the ultra type and therefore is safer against scorching while permitting short cures. These features insure it a strong position with the compounder.

ANTI-OXIDANTS. These are rapidly gaining in popularity because they fill most important technical and economic needs in the matter of economizing rubber and lengthening the life of rubber goods.

BENZOL. The demand continues excellent. Shipments against contracts are heavy and distributers' stocks are sold ahead.

CARBON BLACK. The uncertainty regarding the extent to which the state gas authorities will permit gas to be burned for carbon black is holding back trading for next year. Some future business, however, has been done at current prices. The demand is good on forward contracts by the rubber trade.

CLAY. The cut in prices has stimulated consumption of the better grades for rubber purposes, and thus relatively strengthened their position without doing as much for the softer clays.

LITHARGE. Two advances, totaling 50 cents per 100 pounds of litharge in casks, were made last month following the break in pig lead. A steady movement on old contracts is reported while new trade is not as active.

MINERAL RUBBER. Trade in mineral rubber is going strong, substantiating the report that rubber companies are planning to increase their use of it the coming year.

SOLVENT NAPHTHA. There is a large volume demand for this solvent. The market is steady and most of the production is sold in advance. In the proofing trade any other solvent cannot be substituted satisfactorily.

ZINC OXIDE. The market is quiet, steady and unchanged with the movement reduced to seasonal average proportions.

New York Quotations

November 24, 1926

Accelerators, Inorganic

Lead, carbonate	lb.	$0.10¼	@
Lead, red	lb.	.11¼	@
sublimed white	lb.	.10	@
sublimed blue	lb.	.10	@
Lime, R. M. hydrated	ton	15.00	@25.00
Litharge	lb.	.10¼	@
Magnesia calcined, light, (bbls.)	lb.	.15	@
calcined, md. light (bbls.)	lb.		@
calcined, extra light (bbls.)	lb.		@
calcined, heavy (bbls.)	lb.	.04	@ .04¼
magnesium, carb., light (bags)	lb.		@
Orange mineral A.A.A	lb.	.13½	@
Rubber lead No. 4	lb.		@

Accelerators, Organic

Aldehyde ammonia	lb.	.82	@
Aniline (drums)	lb.	.16½	@ .17
B. B	lb.	1.05	@ 1.07
Captax	lb.	1.20	@ 1.50
D. P. G. salt	lb.	.76	@
Di-ortho-tolylguanidine	lb.	1.05	@ 1.08
Diphenyl guanidine	lb.	.85	@ .88
Ethylidine aniline	lb.	.65	@
Excellerex	lb.		@
Formaldehyde aniline	lb.	.42½	@
Furac 1, 2 and 3	lb.		@
Grasselerator 102	lb.	.80	@ .85
552	lb.	4.80	@ 5.00
808	lb.	1.25	@ 1.50
Heptene	lb.	.55	@
Hexamethylene tetramine	lb.	.80	@ .85
Hydrofuramide	lb.		@
Methylene aniline	lb.		@
Methylene dianiline	lb.	.40	@
Monex	lb.	3.25	@
No. 999 lead oleate	lb.	.17	@ .18
Piperidine Penta-Dithio-Carb.	lb.	5.00	@
R. & H. 50 (100 lb. drums)		.60	@
Super-sulphur, No. 1	lb.	.50	@
No. 2	lb.	.18	@ .25
Tensilac No. 39	lb.	.65	@
No. 41	lb.	.65	@
Thionex	lb.	3.25	@
Thiocarbanilid	lb.	.22	@ .28
Trimene	lb.	.75	@
base	lb.	1.20	@
Triphenylguanidine	lb.	.69	@ .72
Tuads	lb.	3.25	@
Vulcanex		.86	@
Vulcanol	lb.	1.08	@
Vulcone	lb.	.74	@
W-87	lb.	.85	@
Zimate	lb.	4.00	@

Acids

Acetic 28% (bbls.)	100 lbs.	$3.50	@
glacial (carboys)	100 lbs.	12.21	@
Oleic	lb.	.10	@ .10½
Stearic	lb.	.14	@
Sulphuric, 66% (carboys)	100 lbs.	1.60	@

Alkalies

Caustic soda	lb.	.03	@
Sulphite soda	100 lbs.	3.50	@

Anti-Oxidants

Age-Rite	lb.	.85	@ .90
Antox	lb.	.83	@
V. G. B	lb.	.66	@

Colors

BLACK

Bone	lb.	.05½	@ .11
Carbon (see Comp. Ing.)			
A. & W. nonfil No. 1	lb.	.40	@
No. 2	lb.	.25	@
Drop	lb.	.07½	@ .15
Lampblack	lb.	.10	@ .40

BLUE

A. & W. blue	lb.	1.25	@ 5.00
Du Pont, N	100 lbs.	1.35	@
Marine, A. C	100 lbs.	1.30	@
5 R	lb.	1.00	@
2 G	lb.	.90	@
Prussian	lb.	.34	@ .35
Ultramarine	lb.	.09	@ .35

BROWN

Sienna, Italian	lb.	.04	@ .08
Umber, Turkey	lb.	.04	@ .06

GREEN

A. & W. green	lb.	1.25	@ 3.00
Chrome, light	lb.	.27	@ .31
medium	lb.	.29	@ .32
dark	lb.	.31	@ .33
Du Pont, A. C	lb.	3.00	@
4 G	lb.	.60	@
G. L	100 lbs.	.30	@
Y. L	100 lbs.	.75	@
Oxide of chromium	lb.	.38	@

ORANGE

Du Pont, 2 R	lb.	1.40	@
R. O	100 lbs.	1.35	@
R. X	100 lbs.	1.30	@
Y. O	100 lbs.	1.60	@
Y. X	100 lbs.	1.15	@

RED

A. & W. red	lb.	.75	@ 3.50
purple	lb.	2.00	@ 4.00
Antimony, golden	lb.	.19	@ .22
golden 15/17%	lb.	.20	@ .22
T. K. "Special" 1%	lb.		@
Pentasulphide 15/17%	lb.		@

Colors—(Continued)

RED—(Continued)

Antimony, crimson	lb.	$0.16	@$0.18
crimson, R.M.P. No. 3	lb.	.48	@
T. K. 15/17%	lb.		@
Sulphur free	lb.	.35	@
7-A	lb	.37	@
Z-2	lb.	.20	@
Sulphuret vermilion	lb.	.37½	@
Du Pont R. I.	100 lbs.	2.00	@
6 B	lb.	1.60	@
4 B. L	lb.	.60	@
R. S.	100 lbs.	1.45	@
Brilliant A. C.	100 lbs.	1.20	@
Iron Oxides			
bright red pure domestic	lb.	.12	@
bright red pure English	lb.	.14	@ .15
bright red red. English	lb.	.10	@ .12
bright red red. domestic	lb.	.10	@
Indian (maroon), red pure domestic	lb.	.11	@
Indian (maroon), red pure English	lb.	.11	@ .13
Indian (maroon), red reduced English	lb.	.08	@ .10
Indian (maroon), red reduced domestic	lb.	.08	@
Oximony	lb.	.13¼	@
Spanish red oxide	lb.	.04	@
Venetian reds	lb.	.02½	@ .06
Vermilion, English quicksilver	lb.	1.55	@ 1.65

WHITE

Albalith	lb.*		@
Lithopone	lb		@
Azolith	lb.	.05½	@ .06
Grasselli	lb.	.05¾	@ .06½
Sterling	lb.	.05¾	@ .06½
Zinc Oxide			
AAA (lead free)	lb.	.07¼	@ .07¾
Azo (factory):			
ZZZ (lead free)	lb.	.07¼	@ .07¾
ZZ (5% leaded)	lb.	.06¾	@ .07¾
Z (8% leaded)	lb	.07¼	@ .07¾
French Process			
Green seal	lb.*		@
Red seal	lb.*		@
White seal	lb.*		@
Horse Head Brands			
Selected	lb.*		@
Special	lb.*		@
XX red	lb.*		@
Palmerton Process			
Kadox, black	lb.*		@
blue	lb.*		@
red	lb.*		@

Colors—*(Continued)*

WHITE—*Continued*

Leaded Brands

Lehigh	lb.*	@	
Standard	lb.*	@	
Sterling	lb.*	@	
Superior	lb.*	@	

* Prices on application.

YELLOW

A. & W. yellow	lb.	$2.00	@$4.00
Arsenic	lb.	.48	@
I. K. Sulphide	lb.		@
Cadmium sulphide	lb.	1.50	@
Chrome	lb.	.17½	@ .18½
Du Pont N.	100 lbs.	4.00	@
R. R.	lb.	1.55	@
Grasselli cadmium	lb.	1.50	@
Ochre, domestic	lb.	.01¾	@ .02
imported	lb.	.03½	@ .03½
Oxide, pure	lb.	.08	@ .12
Zinc imp.	lb.	.24	@

Compounding Ingredients

Aluminum flake (sacks e.l.)	ton	21.85	@
(sacks l.c.l.)	ton	24.50	@
Filler	ton		@
Silicate	ton		@
Ammonia Carbonate	lb.	.11½	@ .12½
Asbestine	ton	13.50	@14.50
Barium, carbonate	ton	48.00	@50.00
dust	lb.	.05	@ .06
sulphate	lb.	.04	@
Barytes, imported	ton	30.00	@
water ground and floated	ton	23.00	@25.00
Basofor	lb.	.04½	@
Blanc fixe, dry	ton	85.00	@87.50
pulp	ton	62.00	@62.50
Carbon Black			
Aerfloted arrow	lb.	.09	@ .13
Compressed	lb.	.08½	@ .12½
Uncompressed	lb.	.08	@ .12
Micronex	lb.	.09	@ .13
Carrara filler	lb.	.01½	@
Chalk	lb.		@
Clay, blue rib. (c. l. fcty.)	ton		
Blue Ridge, dark	ton	9.00	@
light	ton	12.00	@
China	lb.	.01¾	@
Dixie	ton	15.00	@
Langford	ton	12.00	@
Mineral Flour (Florida)	ton	20.00	@23.00
Para	ton		@
Perfection	ton	16.00	@27.00
Suprex	ton	13.00	@26.00
Cotton flock, black	lb.	.11	@ .12
light-colored	lb.	.11	@ .12
white	lb.	.12½	@ .28
Cotton linters clean mill run	lb.		@
Fossil flour	lb.	.02½	@
Glue, high grade	lb.	.19½	@ .29
medium	lb.	.18	@ .24
low grade	lb.	.12	@ .14
Infusorial earth	lb.	.02½	@
Mica, amber (fact'y)	lb	.05	@
Diamond	lb.		@
Pumice stone, powd.	lb.	.02½	@ .04

New York Quotations

November 24, 1926

Compounding Ingredients—*(Continued)*

Rotten stone (bbls.)	lb.	$0.02½	@$0.04½
Slate flour (fact'y c. l.)	ton		@
Soap bark	lb.	.12	@
Soapstone	ton	15.00	@22.00
Sodium bicarb	100 lbs.	1.90	@ 2.50
Starch, pewd. corn			
Buffalo (bbls.)	100 lbs.	3.49	@ 3.59
Buffalo (bags)	100 lbs.	3.22	@ 3.32
Talc, domestic	lb.	.02	@
French	ton	40.00	@45.00
Terre blanche	ton		@
Thermatomic carbon	lb.	.05	@
Whiting:			
Commercial	100 lbs.	.85	@ 1.00
English, cliffstone	100 lbs.	1.50	@
Quaker	ton	13.00	@
Snow white	ton	13.00	@15.00
Sussex	ton	8.00	@
Westminster Brand	100 lbs.		@
Witco (c.l.) (fact'y)	ton	12.00	@20.00
Whiting, imp. chalk	100 lbs.	1.00	@ 1.15
Paris White, Eng. Cliffstone,	100 lbs.	1.50	@ 2.50
Wood flour	ton	40.00	@
Pulp, XXX (fact'y)	ton		@
X (fact'y)	ton		@

Mineral Rubber

Genasco (facty.)	ton	50.00	@52.00
Gilsonite (fact'y)	ton	37.14	@39.65
Granulated M. R.	ton		@
Hydrocarbon, hard	ton	29.00	@35.00
Hydrocarbon, soft	ton	29.00	@35.00
Ohmlac Kapak, M-R	ton		@
K-4	ton		@
320/340 m. p. hydrocarbon	ton	47.00	@52.00
300/310 m. p. hydrocarbon	ton	42.00	@47.00
Paradura (fact'y)	ton		@
Pioneer, M. R., solid (fac.)	ton	.42	@ .44
M. R. granulated	ton	.52	@ .54
Robertson, M. R. solid (facty.)	ton		@
M. R. gran. (facty.)	ton		@

Oils (Softeners)

Castor, No. 1, U. S. P.	lb.	.11½	@
No. 3, U. S. P.	lb.	.11	@
Corn, crude (bbls.)	lb.	.10¾	@ .11
Cotton, summer yellow	lb.	.08	@ .09
Fluxrite fluid	lb.	.05	@ .06
solid	lb.	.05	@ .06
Glycerine	lb.	.32	@
Linseed, raw	lb.		@
Liquid flux	lb.	.09	@ .12
Moldrite	lb.		@
Palm lagus	lb.	.08½	@
niger	lb.	.08	@
Peanut, crude	lb.	.09	@
refined	lb.	.10	@
Petrolatum, standard	lb.	.06	@ .08
sticky	lb.	.08	@ .10
Petroline	lb.	.03	@ .04
Pine, steam distilled	gal.	.72	@
Plastone	lb	.39	@
Rapeseed, refined	lb.	.12	@
Rosin	gal.	.96	@
Synthecite	lb.	.04	@ .05
Tar	gal.	.50	@
Virol	lb.	.07	@ .08

Resins and Pitches

Pitch			
Coal tar	bbl.		@
Pine tar, retort	bbl.	$18.00	@
Ponto	lb.		@
Rosin, K (bbl.)	280 lbs.	14.00	@
strained (bbl.)	280 lbs.	13.25	@
Shellac, fine orange	lb.	.70	@
Tar, kiln	bbl.	17.00	@

Solvents

Benzol (90%, 7.21 lbs. gal.) pure	gal.	.29	@
Carbon bisulphide (10.81 lbs. gal.) 99.9% pure (drums)	lb.	.06	@ .07
tetrachloride (13.28 lbs. gal.) 99.7% pure (drums)	lb.	.06¾	@ .07½
Gasoline			
No. 303			
Tankcars	gal.	.20½	@
Drums, c. l.	gal.	.23½	@
Drums, l. c. l.	gal.	.26½	@
Naphtha			
68° Bé., 112°, 324°	gal.	.20	@
70° Bé., 114°, 314°	gal.	.20½	@
71° Bé., 112°, 304°	gal.	.21	@
Turpentine, spirits	gal.	.96	@
wood, steam distilled	gal	.87	@

Substitutes

Black	lb.	.08	@ .14
Brown	lb.	.08	@ .15
White	lb.	.09½	@ .17

Vulcanizing Ingredients

Sulphur chloride	lb.	.06	@
refined velvet (c.l.)	100 lbs.		@
(l.c.l.)	100 lbs.		@
Soft rubber (c.l.)	100 lbs.	2.60	@ 2.95
(l.c.l.)	100 lbs.	2.95	@ 3.30
Superfine flour (c.l.)	100 lbs.		@
(l.c.l.)	100 lbs.		@
Tire brand, superfine	100 lbs.	2.20	@ 2.55
Tube brand, velvet	100 lbs.	2.60	@ 2.95

(See also Colors—Antimony)

Waxes

Wax, beeswax, white, com.	lb.	.55	@
carnauba	lb.	.38	@ .80
ceresine white	lb.	.13	@
montan	lb.	.07	@ .07½
ozokerite, black	lb.	.30	@
green	lb.	.32	@

Paraffin

122/124 white crude scale	lb.	.05½	@
124/126 white crude scale	lb.	.05¾	@
123/125 fully refined	lb.	.06	@
125/127 fully refined	lb.	.05½	@

D-13 COMMITTEE A. S. T. M.

Committee D-13 of the A. S. T. M. held its fall meeting at Cleveland, Ohio, October 21 and 22. The announcement was made that D-13 is now the largest standing committee of the association. A broader interest is manifest in its work by the fact that four new tentative specifications were presented for letter ballot. These comprise the following: Proposed General Methods of Testing Textile Fabrics; Revised Specifications for Osnaburg Cement Bags; Tentative Specifications and Tests for Cuban Raw Sugar Bags, and Tolerances and Test Methods for Certain Light and Medium Fabrics.

A resolution of thanks was passed unanimously in appreciation of the work done by the local committe headed by S. A. Stere of The Goodyear Tire & Rubber Co., Akron, Ohio.

Illustrating the need of the more general introduction of A. S. T. M. standards Robert H. Adams, manager of the testing laboratories of The Callaway Mills, Inc., La Grange, Georgia, exhibited a chart showing 15 of the many methods of test and sample cutting which one concern has to meet on the same type of goods.

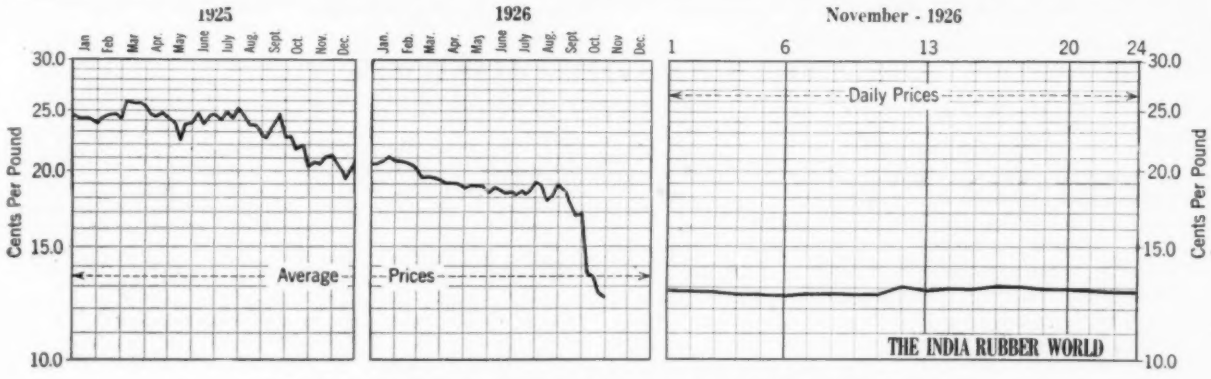
The following committee was appointed to take charge of developing the presentation of papers of more general technical interest at the Committee D-13 meetings: Dean Harvey, of Westinghouse Electric & Manufacturing Co.; David C. Scott, of Henry L. Scott Co., and Douglas G. Woolf, of *Textile World*.

SECTIONAL COMMITTEE ON FIRE HOSE ORGANIZED

The Sectional Committee on Specifications for Rubber-Lined Fire Hose was organized by the A. S. T. M. and the A. E. S. C. Fire Protection Group, at a meeting in New York, N. Y., November 5. The personnel of the Sectional Committee has been practically completed. The Rubber Association of America is represented on this committee by W. H. Cobb, E. H. Grafton and L. J. Howell.

The committee has been assigned the problem of developing standards of construction and performance under test of rubber-lined fire hose for use by private and public fire departments. It hopes to harmonize the requirements of the specifications adopted by the sponsors, by the Federal Government, by the railroads and by the manufacturers.

The committee elected P. L. Wormeley, chairman, and C. J. Krieger, secretary.



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

The Market for Cotton and Fabrics

New York

AMERICAN COTTON. The chief feature of the cotton market for the past month was its steadiness above the 12½ cent level. In fact spot middling upland grade registered a slow advance as shown by the weekly averages for the first three weeks of November, which were 12.70 cents, 12.80 cents and 13.00 cents.

The government report of the crop condition on October 25 was 17,454,000 bales, on November 1 it was 17,918,000 bales and on November 14, 18,399,000 bales. The last figure is 2,295,000 bales greater than the crop of 1925. The ultimate yield for 1926 is dependent not on growth, but on the completion of picking. This work is contingent on the weather, labor conditions and the price during the next two months.

The figures of the crop report yield are accepted without question by the market and occasioned no drop when announced, and fairly steady prices are expected to continue for some time.

EGYPTIAN COTTON. The price of staple cottons has been fairly steady during the past 30 days. Early in November the general buying caused considerable strength in the Alexandria market, Uppers advancing 1 cent and Sakel about 2 cents. Present values, compared with those of October 22, are unchanged for Uppers, and are one cent higher for Sakel. They thus show a decline from the recent high of one cent a pound for both growths. The principal interest now centers in American staples of lower grades which are in large supply.

ARIZONA COTTON. The Pima market has declined slightly but the crop is so small that the demand from spinners of very fine accounts has presented a break.

Cotton Fabrics

DUCKS, DRILLS AND OSNABURGS. The market is active and prices firm. There is a tendency by consumers to engage supplies through the first quarter of 1927 and to some extent for the second quarter. Mills making mechanical ducks are very busy.

RAINCOAT FABRICS. Rubberizers are very busy on raincoat fabric proofing and expect the demand to continue until the middle of December. They are preparing new lines for 1927 spring season and anticipate that high color plaids will be very popular.

SHEETINGS. There has been a fairly good volume of buying of sheetings for delivery during the first 6 months of next year although it was not general. Buying of coarse yarn goods continues from hand to mouth for immediate requirements.

TIRE FABRICS. Tire price reductions and spring dating have produced a large scale interest in the fabric market, and are finding expression in commitments for delivery in the last half of 1927. Tire mills are thought to be covered for about 30 per cent of their needs for this period. The fabric situation looks better and tire companies are offering new business. Practically nothing has been done in square woven fabric since the buying movement began. Fabric mills can handle considerably greater volume of business and are inclined to hold off for better than the current prices.

New York Quotations

November 24, 1926

Drills		
38-inch 2.00-yard	*yard*	$0.14¾ @
40-inch 3.47-yard		.08½ @
52-inch 1.90-yard		.16½ @
60-inch 1.52-yard		.20⅛ @
Ducks		
38-inch 2.00-yard	*yard*	.15 @
40-inch 1.47-yard		.20⅜ @
72-inch 16.66-ounce		.35⅜ @
72-inch 17.21-ounce		.36⅝ @
MECHANICAL		
Hose and belting	*pound*	.28 @
Specials		.32 @
TENNIS		
52-inch 1.35-yard	*yard*	.23½ @
Hollands		
DEAD FINISH		
Standard, 36-inch	*yard*	.19½ @
42-inch		.23½ @
FLAT FINISH		
Imperial, 36-inch		.15½ @
40-inch		.17½ @
RED SEAL		
36-inch		.14½ @
40-inch		.15½ @
50-inch		.23 @
GOLD SEAL		
40-inch, No. 72		.19½ @
40-inch, No. 80		.20½ @

Osnaburgs		
40-inch 2.35-yard	*yard*	$0.12⅝ @
40-inch 2.48-yard		.11⅞ @
40-inch 3.00-yard		.09⅞ @
37-inch 2.42-yard		.12⅛ @
Raincoat Fabrics		
COTTON		
Bombazine 64 x 60	*yard*	.11 @
Bombazine 60 x 48		.10 @
Plaids 60 x 48		.10¼ @
Plaids 48 x 48		.10 @
Surface prints 60 x 48		.11½ @
Surface prints 64 x 60		.12½ @
Sheetings, 40-inch		
48 x 48, 2.50-yard	*yard*	.11½ @
48 x 48, 2.85-yard		.09¾ @
64 x 68, 3.15-yard		.11 @
56 x 60, 3.60-yard		.09¼ @
48 x 44 3.75-yard		.08¾ @
Sheetings, 36-inch		
48 x 48, 5.00-yard	*yard*	.06⅜ @ .06½
40 x 40, 6.15-yard		.05 @ .05¼

Tire Fabrics		
SQUARE WOVEN 17¼-ounce		
Egyptian, karded	*pound*	@
Peeler, karded	$0.36	@
CORD 23/5/3		
Egyptian, combed	*pound*	@
Egyptian, karded		@
Peeler karded, 1 1/32-in.	.35	@
CORD 23/4/3		
Peeler, karded	*pound* .36	@
CORD 23/3/3		
Peeler, karded	*pound* .43	@
CORD 15/3/3		
Peeler, karded	*pound* .32½	@
CORD 13/3/3		
Peeler, karded	*pound* .32	@
LENO BREAKER		
8-oz. Peeler, karded	*pound* .50	@
10-oz. Peeler, karded	.45	@
CHAFER		
8.25-oz. Peeler, karded (2 ply)	*pound*	@
9.5-oz. Peeler, karded (4-ply)	.46	@
12-oz. Peeler, karded	.40	@
14-oz. Peeler, karded	.35	@

The Cotton Outlook

MEASURES for assisting the cotton industry are being still further developed, especially since the government's issuance of the latest crop report, as of November 14, indicating a production of approximately 18,399,000 bales. Among the proposals for relief is the utilization of a $150,000,000 fund, to be advanced, according to advices from Washington, by the intermediate credit banks to the cotton finance corporations on the basis of their combined $15,000,000 capital for the assistance of bankers, supply men and others holding distress cotton.

A plan under consideration by the Federal Farm Loan Board contemplates as the first step the financing of the storage of 4,000,000 bales of 1926 cotton, 10 financing organizations being formed to finance such storage for a period of 18 months, or until such time as it can be marketed in an orderly manner. The cotton finance corporations are represented as stating that every effort will be made to reach the cotton still in farmers' hands, so that proceeds of the sale of the cotton over and above the loans and carrying charges will go directly to the farmers.

Programs For Stabilizing Cotton Prices

In its attempts to improve conditions in the industry the American Cotton Association is taking a leading part, especially in its plan of holding conferences among cotton growers, bankers and merchants in the campaign for cotton acreage reduction in 1927. The organization will spend $100,000 yearly for the next three years in an expansion program, which will cover practically every department of farm life. Plans will include the establishment in the cotton belt counties of 1,000 5-acre cotton and corn demonstration stations, and 200 20-acre farms, the purpose being to prove in each neighborhood the economic benefits not only of intensive culture and proper fertilization of cotton, but also of definite plans for diversified crops, and rotation over three-year periods. The farmer operators of these stations and farms, who have been especially selected, will be encouraged to compete for the $10,000 which will be offered in prizes for the best results secured. The association believes that the present program for rehabilitation will be an improvement over the unsatisfactory and generally unprofitable methods of the past. It is believed that even with a reduction of 10,000,000 acres of its present cotton acreage the Southern grower could raise the same amount of cotton as the largest crop ever harvested, that of the year 1914.

Statements were made by Samuel T. Hubbard, Jr., president of the New York Cotton Exchange, after his return from a visit to New Orleans, where he attended a private conference of bankers, cotton shippers, and officials of cotton exchanges. The substance of the resolutions adopted at the conference were, according to Mr. Hubbard:

That cotton at the present level is below the cost of production and, this being the case, it is a safe and attractive commodity for investment; that spinners may now well be urged to anticipate their requirements not only for the present season but for at least a portion of the season of 1927-28, and even periods beyond, in view of the anticipated acreage reduction for the next crop and the uncertainty of the growing season.

It was the further sense of the resolutions that there is an abundance of money available through the banking institutions for liberal advances on cotton at the present price, and the bankers of the South were urged so to inform the cotton producers and merchants. Counsel was extended to the farmers that they go ahead with the harvesting of their crops before the elements damaged the quality. They were cautioned to sell as little as possible at the present level and to store the remainder in dry places and hold it for better prices. They were urged further to make a substantial reduction in the cotton acreage for next year.

Improvement in American Cotton Exports

There has been a decided improvement in American cotton export figures since the publication of statistics for the first six months of 1926 by the Chamber of Commerce of the United States. Those compilations represented a decline in cotton export values of 30.4 per cent as compared with the corresponding first half of 1925, the figures being $324,886,000 and $466,917,000 respectively. A quantity comparison showed a falling-off for this early 1926 period of 14.9 per cent.

Since the first of the cotton year, however, or August 1, 1926, the shipments of American cotton have shown a steady increase, this being considered due to a better European demand, stimulated largely by falling prices in the American market. In September the sales to the Far East were double those of the previous month, while the results of a survey made by the Department of Agriculture indicate that purchases during the first three months of the cotton year represent decided gains over last season, especially in the case of Italy, Russia and Japan. In each of these three months the exports of cotton have been greater than during their corresponding months a year before.

Decline in Foreign Cotton Production?

The total production of cotton in foreign countries will probably be somewhat lower than that of last year, according to statistics prepared by the Bureau of Agricultural Economics of the Department of Agriculture. In Egypt, where the policy of restricted acreage and government buying of cotton is being watched with especial interest, the crop for this year is estimated at 1,417,000 bales of 478 pounds, as compared with 1,629,000 bales last year. Russia's yield is 703,000 bales, as against 737,000 bales for last season. It is important to note, however, that the cotton acreage of that country has expanded from the low figure of 174,000 acres in 1922-1923 to 1,720,000 acres this season, this exceeding the pre-war acreage. India's cotton area is estimated at 22,143,000 acres, compared with 22,752,000 acres last year. These various decreases are said, however, to be partly balanced by increases in Chosen, Mexico and the Anglo-Egyptian Sudan, while cotton culture is steadily progressing in Argentina.

The following dealers in cotton goods for the rubber industry are listed in our Buyers' Directory. For complete information see Index to Advertisers on Page 114.

Adams, H. J., Co., The, Akron, Ohio.
Bibb Manufacturing Co., Macon, Georgia.
Brighton Mills, Passaic, New Jersey.
Callaway Mills, Inc., New York, N. Y.
Curran & Barry, New York, N. Y.
Lane, J. H. & Co., New York, N. Y., and Chicago, Illinois.
Lawrence & Co., New York, N. Y.
Willingham Cotton Mills, Macon, Georgia.

Some American Cotton Statistics

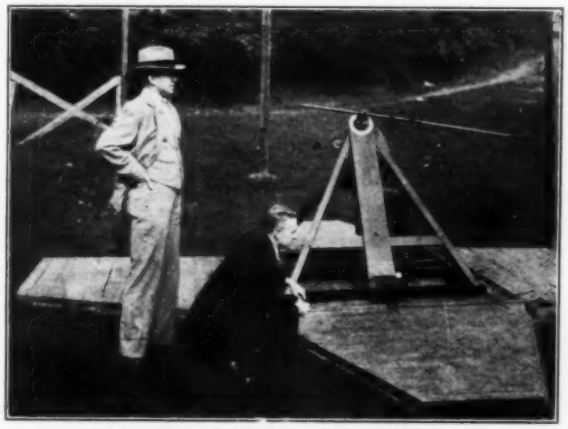
The United States possesses, according to the Commerce Yearbook, 23.4 per cent of the world's total cotton spindles, being exceeded only by the United Kingdom, which leads with 35.3 per cent. Germany and France each have only about a fourth as many spindles as the United States.

The American industry has cotton mills in thirty-one states, these mills being principally in New England and the cotton-growing states. The Census Bureau reported 37,877,00 spindles in place on February 28, 1926, of which 17,780,000 were in the cotton-growing states (mainly those lying along the Atlantic seaboard) and 18,175,000 in New England. Massachusetts has 11,597,000 spindles, followed by North Carolina with 6,063,000 and South Carolina with 5,334,000.

GOLF BALL TESTING MACHINE

A novel method of trying out golf balls for flight has been devised by the Goodyear Tire & Rubber Co., at its Akron plant. It is done by the "automatic golf player," which "always makes a hole in one."

It would be impossible for a human being to hit a golf ball twice with exactly the same force and accuracy. But the golf ball testing machine shown herewith does this and as many times as the operator desires. The ball is placed on the tee, the machine is set, the club delivers a tremendous wallop, and the ball travels in a beautiful arc down the field every time.



Goodyear Golf Ball Testing Machine

AUSTRALIAN TYPE OF COLLAPSIBLE RIM

An inventor in Hobart, Tasmania, has recently placed on the market a new type of rim which is hinged in two places and locked at the main point as in an ordinary rim. Upon its removal from the wheel the lock is unlatched and the rim collapses at the hinged parts, freeing the tire and tube. It is claimed that this rim can quickly be replaced by the use of a screw driver, while it is adapted to such cars as are fitted with straight side tires.

ARGENTINA FOOTWEAR COMPANY REORGANIZED

Under the name of Laurent Bros., the rubber footwear manufacturing concern which has been formerly operating as F. Laurent & Sons will continue to carry on business at 1957-1963 Catamarca, Buenos Aires, Argentina. Active members of the firm are: Alberto Laurent, Pablo Laurent, and Ernesto Laurent.

AMERICAN EXPORTS OF SOLID TIRES FOR AUTOMOBILES AND MOTOR trucks numbered for the twelve months ended June, 1926, 114,072, value $3,812,321.

Metal Market Review

New York

Among the non-ferrous metals tin holds the strongest position, with prices steadily advancing. Lead also remains undisturbed by the weakness of some of the other metals; prices are moderate and steady, while buying is well distributed among various consuming lines. There is a seasonal decrease in steel consumption, ingot production in the early part of November being estimated at 77 per cent of total capacity, as compared with 84 per cent in the middle of October.

ALUMINUM. Imports during November of German aluminum have been relatively heavy, while Norwegian and British shipments have been less than usual. Prices remain unchanged.

ANTIMONY. Cables from China report an active demand for this metal and keen competition for tonnages available for November-December shipment at the equivalent of 13 cents c. i. f. New York.

COPPER. World production of copper for the first ten months of the year is estimated as being 1,310,929 tons, the share of the United States being 724,809 tons. Domestic consumption of copper for the year 1926 will, according to the Copper & Brass Research Association, exceed 1,750,000,000 pounds, the highest figure in the history of the industry, not excluding the war years. The electrical industry is by far the largest consumer of copper, using consistently about 65 per cent of the world's production.

LEAD. The market has a strong tone, with the price tendency slightly upward. Sales are in good volume, with quotations remaining at 8 cents a pound, New York, and 7.80 a pound, East St. Louis.

STEEL. Ingot production in the United States during the first ten months of the year totaled, according to the American Iron & Steel Institute, 39,939,398 tons, as against 36,266,920 tons for the corresponding period of last year. It is stated that mill operations will probably show a decrease during the next few weeks, followed by a sharp upturn immediately after January 1.

TIN. During the middle of November there were sharp advances in the price of tin, the more cautious buyers later leaving the market in the hands of speculators. Spot Straits tin was sold on November 24 at 72½ cents a pound, the highest point reached since the first quarter of 1919, when the government lifted the embargo on this metal.

ZINC. Sales were in good volume during the early part of November, the market later becoming very quiet. Prompt supplies are somewhat scarce, and it is said that the trading abroad in recent weeks has been entirely in futures.

Basic Metals

November 24, 1926

	Cents per pound		
Aluminum, virgin, 98@99 per cent	27.00	@	
Antimony	13.00	@	13.125
Copper—Lake, spot	14.00	@	
Electrolytic, spot	13.80	@	13.875
Castings, refinery	13.40	@	
Lead, spot, New York	8.00	@	8.05
Lead, spot, East St. Louis	7.775	@	7.825
Nickel, ingot, pound	35.00	@	
Tin, spot	70.625	@	
Zinc, spot, New York	7.575	@	7.60
Zinc, spot, East St. Louis	7.22	@	7.25

Steel Wire

	Base per 100 lbs.	
Bright, plain wire No. 9 gage	$2.50	@
Annealed fence wire	2.65	@
Galvanized wire No. 9	3.10	@
Spring wire	3.50	@

Copper Wire

BASE PRICE F. O. B. FACTORY

	Cents per pound	
Bare copper wire	16.00	@
No. 6. B. & S. gage	16.00	@
No. 8 B. & S. gage	16.00	@
No. 14 B. & S.	17.00	@

United Kingdom Rubber Statistics

Imports

UNMANUFACTURED Crude rubber From—	September, 1926 Pounds	September, 1926 Value	Nine Months Ended September, 1926 Pounds	Nine Months Ended September, 1926 Value
Straits Settlements	12,845,200	£1,050,939	97,855,200	£10,703,827
Federated Malay States	6,293,600	512,795	44,624,800	4,723,615
British India	418,100	34,491	8,101,500	971,860
Ceylon and Dependencies	4,200,000	344,828	31,879,900	3,466,092
Other Dutch possessions in Indian Seas	1,639,400	129,823	13,663,800	1,436,730
Dutch East Indies (except other Dutch possessions in Indian Seas)	3,150,700	258,983	22,766,400	2,372,258
Other countries in East Indies and Pacific, not elsewhere specified	385,700	31,504	1,667,100	175,489
Brazil	242,400	17,835	7,350,000	809,802
Peru	2,700	220	102,000	8,576
South and Central America (except Brazil and Peru)	1,500	12,121	318,200	29,963
West Africa:				
French West Africa	31,400	1,204	1,377,000	120,963
Gold Coast	61,400	3,260	806,000	55,412
Other parts of West Africa	221,100	14,410	1,398,700	132,006
East Africa, including Madagascar	181,800	14,813	1,182,200	117,956
Other countries	59,700	4,855	1,081,200	130,361
Totals	29,734,700	£2,420,081	234,174,000	£25,254,910
Waste and reclaimed rubber	322,900	£4,106	5,002,700	£86,141
Gutta percha and balata	399,700	43,196	6,159,500	794,572
Rubber substitutes	27,300	2,890	163,200	10,825
Totals	749,900	£50,192	113,254	£891,538
MANUFACTURED				
Boots and shoes....*doz. pairs*	40,097	£135,532	352,172	£820,933
Tires and tubes				
Pneumatic				
Outer covers	.....	338,696	.....	2,988,018
Inner tubes	.....	36,955	.....	476,074
Solid tires	.....	22,010	.....	236,418
Other rubber manufactures	.....	110,277	.....	1,207,568
Totals	.....	£643,470	.....	£5,729,011

Exports

UNMANUFACTURED				
Waste and reclaimed rubber	1,556,800	£16,567	16,754,500	£221,069
Rubber substitutes	71,900	2,156	736,100	17,425
Totals	1,628,700	£18,723	17,490,600	£238,494
MANUFACTURED				
Boots and shoes....*doz. pairs*	19,717	£36,558	173,334	£282,325
Tires and tubes				
Pneumatic				
Outer covers	.....	248,841	.....	2,490,217
Inner tubes	.....	52,315	.....	522,329
Solid tires	.....	34,880	.....	332,851
Other rubber manufactures	.....	248,983	.....	2,305,917
Totals	.....	£621,577	.....	£5,933,639

Exports—Colonial and Foreign

UNMANUFACTURED Crude rubber From—				
Russia	1,057,900	£209,356	10,420,400	£1,888,166
Sweden, Norway and Denmark	121,700	11,318	1,650,400	213,492
Germany	1,585,100	129,121	9,998,400	1,113,128
Belgium	183,800	14,114	2,148,100	242,966
France	1,233,200	112,842	16,486,800	2,082,077
Spain	47,100	4,169	562,500	82,714
Italy	104,500	8,469	4,979,800	723,293
Other European countries	330,400	23,918	1,589,800	178,064
United States	5,192,200	450,602	44,791,700	6,056,079
Canada	.....	.....	256,900	42,576
Other countries	70,200	7,077	644,700	86,851
Totals	9,926,100	£970,986	93,529,500	£12,709,406
Waste and reclaimed rubber	8,000	£198	186,800	£5,208
Gutta percha and balata	41,500	4,616	267,500	37,387
Rubber substitutes	.....	.....	2,200	6,000
Totals	49,500	£4,814	456,500	£42,655
MANUFACTURED				
Boots and shoes....*doz. pairs*	409	£1,450	5,466	£15,448
Tires and tubes				
Pneumatic				
Outer covers	.....	38,934	.....	297,009
Inner tubes	.....	7,595	.....	46,723
Solid tires	.....	462	.....	11,760
Other rubber manufactures	.....	5,119	.....	58,019
Totals	.....	£53,560	.....	£428,959

Dominion of Canada Rubber Statistics

Imports of Crude and Manufactured Rubber

UNMANUFACTURED	August, 1926 Pounds	August, 1926 Value	Five Months Ended August, 1926 Pounds	Five Months Ended August, 1926 Value
Rubber, gutta percha, etc.				
From United Kingdom	3,357	$1,571	3,357	$1,571
United States	3,918,813	1,794,926	15,454,712	7,722,148
Straits Settlements	277,897	102,190	1,166,403	564,963
Dutch East Indies	29,170	11,555	146,502	82,325
Other countries	.....	.....	11,200	15,600
Totals	4,229,237	$1,910,242	16,782,174	$8,386,607
Rubber, reccvered	636,664	$66,393	3,009,908	$372,198
Rubber, powdered and rubber or gutta percha scrap	556,772	38,341	3,223,217	187,894
Balata	.....	.....	3,206	2,361
Rubber substitutes	33,562	3,179	310,160	33,293
Totals	1,226,998	$107,913	6,546,491	$595,735
PARTLY MANUFACTURED				
Hard rubber sheets and rods	10,400	$6,020	55,611	$31,580
Hard rubber tubes	.....	993	.....	3,163
Rubber thread not covered	6,533	10,304	45,844	77,099
Totals	16,933	$17,317	101,455	$111,842
MANUFACTURED				
Belting	.....	$37,519	.....	$116,684
Hose	.....	12,978	.....	82,492
Packing	.....	3,600	.....	20,506
Boots and shoes.....*pairs*	2,834	4,956	10,506	15,920
Clothing, including waterproofed	.....	15,437	.....	99,365
Gloves	.....	2,538	.....	9,655
Hot water bottles	.....	3,419	.....	6,687
Tires, solid .....*number*	58	2,635	385	20,662
Tires, pneumatic ....*number*	4,759	41,974	28,119	145,326
Tires, tubes .....*number*	1,994	4,170	7,687	18,455
Elastic, round or flat	.....	16,936	.....	79,508
Mats and matting	.....	6,559	.....	20,052
Cement	.....	9,570	.....	38,862
Golf balls .....*dozen*	3,780	16,275	30,307	122,595
Heels, rubber.....*pairs*	18,750	770	99,525	6,686
Other rubber manufactures	.....	101,137	.....	589,742
Totals	.....	$280,873	.....	$1,393,297
Totals, rubber imports	.....	$2,316,345	.....	$10,487,492

Exports of Domestic and Foreign Rubber Goods

UNMANUFACTURED	August, 1926 Produce of Canada Value	August, 1926 Re-exports of Foreign Goods Value	Five Months Ended August, 1926 Produce of Canada Value	Five Months Ended August, 1926 Re-exports of Foreign Goods Value
Crude and waste rubber	$31,669	.....	$114,342	.....
Totals	$31,669	.....	$114,342	.....
MANUFACTURED				
Belting	$48,016	.....	$228,131	.....
Canvas shoes with rubber soles	467,972	.....	1,736,556	.....
Boots and shoes	419,062	.....	974,696	.....
Clothing, including waterproofed	2,477	.....	12,168	.....
Hose	24,376	.....	107,336	.....
Tires, casings	1,178,701	.....	5,819,213	.....
Inner tubes	164,968	.....	1,003,475	.....
Solid	18,056	.....	97,744	.....
Other rubber manufactures	45,767	$8,706	228,221	$61,426
Totals	$2,369,395	$8,706	$10,207,540	$61,426
Totals, rubber exports	$2,401,064	$8,706	$10,321,882	$61,426

Landings, Deliveries and Stocks in London and Liverpool as Returned by the Warehouses and Wharves During the Month of September, 1926

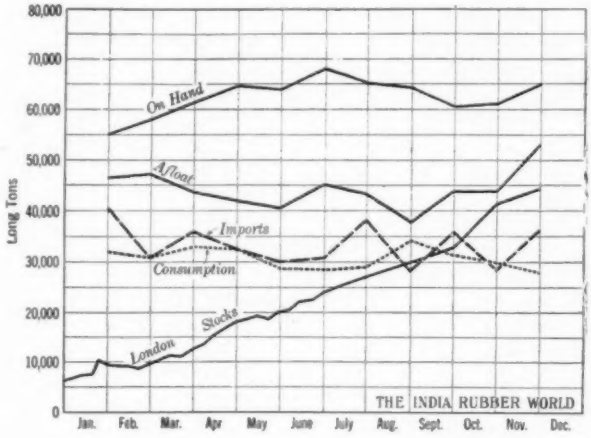
	Landed for September Tons	Delivered for September Tons	Stocks, September 30th 1926 Tons	1925 Tons	1924 Tons
LONDON					
Plantation	10,599	5,666	34,858	5,306	43,838
Other grades	9	22	154	19	109
LIVERPOOL					
Plantation	†590	†359	†1,450	†436	†3,569
Pará and Peruvian	142	161	353	298	280
Other grades	.....	.....	.....	19	198
Total tons, London and Liverpool	11,340	6,208	36,815	6,078	47,994

†Official returns from the six recognized public warehouses.

Rubber Imports, Consumption and Stocks

The graph below covers the rubber supply and consumption for the current year including estimated figures for November.

Stocks of crude rubber in the United States increased nearly 3,000 tons in November, reaching practically 65,000 tons, thus restoring the level prevailing in August from which there was an equally sharp decline in September. October consumption showed a decline of 3,000 tons below that for September due in part to seasonal reductions in the output of tires, etc., and increasing substitution of reclaims for crude rubber.



U. S. Crude Rubber Imports, Consumption and Stocks

London stocks still continue to advance although not as rapidly in November as in October. The increase between October 30 and November 20 was 2,412 tons. On the latter date the London stock was 44,553 tons.

UNITED STATES CRUDE RUBBER IMPORTS, CONSUMPTION AND STOCKS

			Stocks			
1925	Imports Tons	Consumption Tons	On Hand† Tons	Afloat† Tons	London Tons	Singapore and Penang Tons
Twelve months....	388,000	385,000	51,000*	48,000*	.....	.....
1926						
January	40,500	32,000	55,000	46,300	10,100	15,726†
February	31,000	31,000	58,000	47,000	9,100	13,653
March	36,000	33,000	61,500	43,500	12,800	18,389
April	32,700	32,500	64,400	41,900	18,500	16,328
May	30,000	29,000	64,000	40,300	20,200	16,848
June	30,000	28,600	60,460	40,907	23,800	19,400
July	38,000	27,600	65,000	43,000	27,857	23,000
August	27,800	34,500	64,000	37,400	30,159	23,362
Sept.	36,800	32,900	61,000	44,000	36,065	26,000
October	28,150	29,850	62,100	43,465	‡‡41,080	.....
Nov. (estimated)...	36,000	28,000	64,989	52,928	44,553	.....

*December 31, 1925.
†The first of each month.
‡‡November 20, 1926.

Stocks afloat to the United States are estimated at 52,928 tons for November. These represent shipments from the Far East and are 9,463 tons greater than reported for October. The curve for consumption indicates the seasonal production decline now in progress. The strong fluctuations in tonnage of imports since July has resulted in a series of peaks and depressions, as shown by the curve. One of these peak tonnages was indicated for November imports.

The estimated consumption for October proved to be 3,850 tons in excess of the actual. The estimate of November consumption is placed 2,000 tons under actual for October.

United States Rubber Statistics

Imports of Crude and Manufactured Rubber

	August, 1926		Eight Months Ended August, 1926	
UNMANUFACTURED—*Free*	Pounds	Value	Pounds	Value
Crude rubber.....	61,374,535	$24,670,752	604,446,477	$379,720,504
Balata	36,227	16,006	421,249	175,594
Jelutong or Pontianak.....	1,576,788	292,884	11,095,320	2,088,690
Gutta Percha.....	264,320	62,448	1,999,771	420,088
Guayule	988,851	256,135	7,374,557	2,020,700
Rubber scrap.....	2,825,389	115,937	23,972,543	1,122,013
Totals.....	67,066,110	$25,571,669	649,309,917	$385,547,589
Chicle .....*dutiable*	594,437	$292,971	8,971,717	$4,451,468
MANUFACTURED—*dutiable*				
Rubber belting.....	83,637	$49,472	515,690	$347,717
Rubber tires.....	2,495	23,249	5,728	65,939
Other rubber manufactures of substitutes for rubber....	.....	84,786	.....	832,814
Totals.....	86,132	$157,507	521,418	$1,246,470

Exports of Foreign Merchandise

RUBBER AND MANUFACTURES				
Crude rubber.....	2,952,064	$1,339,563	25,718,452	$16,381,621
Balata	4,581	3,820	340,193	195,135
Gutta Percha and Rubber substitutes and scrap.....	6,720	403	108,637	28,056
Rubber manufactures.....	.....	20,898	.....	80,779
Totals.....	.....	$1,364,684	.....	$16,685,591

Exports of Domestic Merchandise

MANUFACTURED				
India rubber				
Reclaimed	830,447	$96,121	7,444,606	$918,765
Scrap and old.....	2,078,039	145,144	18,163,073	1,168,786
Footwear				
Boots .....*pairs*	118,420	260,488	467,301	1,167,805
Shoes .....*pairs*	239,207	224,493	914,876	814,972
Canvas shoes with rubber soles .....*pairs*	376,861	280,618	3,641,417	2,790,441
Rubber water bottles and fountain syringes..*number*	35,894	25,923	158,017	115,905
Rubber gloves.....*doz. pairs*	7,384	18,377	45,302	162,546
Other druggists' rubber sundries	.....	29,970	.....	357,626
Bathing caps.....*dozen*	8,106	17,972	136,514	299,860
Hard rubber goods				
Electrical hard rubber goods	44,437	16,553	440,221	166,273
Other hard rubber goods.	.....	49,619	.....	288,165
Tires				
Casings, automobile.*number*	100,995	1,599,112	951,755	16,681,885
Tubes, automobile.*number*	64,682	165,087	745,135	2,087,968
Other casings and tubes .....*number*	3,156	10,726	52,454	171,308
Solid tires for automobiles and motor trucks.*number*	4,964	170,730	67,641	2,461,650
Others	127,036	45,617	1,073,375	375,484
Tire accessories.....	.....	113,655	.....	1,082,738
Rubber and friction tape..	94,610	34,069	674,318	224,625
Belting	259,032	157,554	2,586,042	1,722,883
Hose	378,700	154,844	4,241,834	1,767,503
Packing	145,505	75,918	1,403,499	725,044
Soles and heels.....	279,232	88,244	2,621,187	841,955
Thread	73,445	90,494	1,030,193	1,387,433
Rubber bands and erasers..	55,651	45,848	414,826	340,109
Other rubber manufactures.	.....	175,596	.....	1,621,130
Totals.....	.....	$4,092,772	.....	$39,742,859
Rubber toys, balls and balloons	.....	$66,375	.....	$541,439

United States Crude and Waste Rubber Imports for 1926 (By Months)

	Plantations	Parás	Africans	Centrals	Guayule	Manicobas and Matto Grosso	Total 1926	Total 1925	Balata	Miscellaneous	Waste
January.....*tons*	36,372	856	791	515	153	10	38,697	29,960	94	607	1,227
February.....	31,832	1,548	227	250	204	6	34,067	23,456	19	728	729
March.....	40,177	1,426	334	256	482	2	42,677	33,914	30	1,264	324
April.....	30,766	854	164	392	494	8	32,678	27,231	35	864	216
May.....	27,915	1,431	199	449	417	..	30,411	36,889	52	932	173
June.....	27,915	960	246	568	418	..	80,107	30,337	41	1,076	208
July.....	35,537	800	36	419	295	..	37,087	33,918	10	1,141	372
August.....	24,431	640	175	496	240	..	25,982	31,584	40	840	1,033
September.....	36,030	1,098	362	416	226	..	38,132	27,071	43	1,075	235
October.....	25,872	1,051	651	348	192	..	28,114	34,908	61	1,028	219
Totals, 10 months, 1926..*tons*	316,847	10,664	3,185	4,109	3,121	26	337,952	.....	425	9,555	4,736
Totals, 10 months, 1925.....	287,694	12,797	2,299	3,494	2,797	187	.....	309,268	485	9,559	2,557

Compiled from statistics supplied by the Rubber Association of America, Inc.

Crude Rubber Arrivals at New York as Reported by Importers

Parás and Caucho

	Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Cameta Cases
OCTOBER 13. By "Francis," Brazil.					
Paul Bertuch & Co., Inc.	62	....	56	863	....
Poel & Kelly, Inc.	....	....	27	....	....
OCTOBER 21. By "Polycarp," Brazil.					
H. A. Astlett & Co.	262	2	96	....	....
Paul Bertuch & Co., Inc.	62	....	56	163	....
Bowring & Co.	....bags	....	....	....	....
General Rubber Co.	112	....	137	92	....
L. Littlejohn & Co., Inc.	249	....	117	9	....
Poel & Kelly, Inc.	62	....	101	45	....
OCTOBER 24. By "Cape Camorin," Brazil.					
L. Littlejohn & Co., Inc.	2,049	....	5	....	....
NOVEMBER 1. By "Swinburne," Brazil.					
H. A. Astlett & Co.	159	10	105	....	....
Paul Bertuch & Co., Inc.	155	....	....	....	....
General Rubber Co.	543	6	138	42	35
L. Littlejohn & Co., Inc.	548	34	337	44	....
Meyer & Brown, Inc.	62	....	....	130	....
Poel & Kelly, Inc.	....	....	27	260	....
NOVEMBER 12. By "Aidan," Brazil.					
Paul Bertuch & Co., Inc.	161	....	25	....	....
General Rubber Co.	383	2	154	60	....
L. Littlejohn & Co., Inc.	164	1	170	566	....

Plantations

	Cases
OCTOBER 15. By "Venice Maru," Far East.	
General Rubber Co.	1,394
H. Muehlstein & Co., Inc.	1,020
Poel & Kelly, Inc.	660
Chas. T. Wilson Co., Inc.	307
OCTOBER 16. By "Chicago," Bordeaux.	
H. Muehlstein & Co., Inc.	787
OCTOBER 17. By "Mahsud," Far East.	
H. A. Astlett & Co.	1,200
General Rubber Co.	1,667
Haldane Bierrie & Co., Inc.	100
L. Littlejohn & Co., Inc.	200
Meyer & Brown, Inc.	599
H. Muehlstein & Co., Inc.	112
Poel & Kelly, Inc.	140
Rogers Brown & Crocker Bros., Inc.	160
Chas. T. Wilson Co., Inc.	480
OCTOBER 18. By "American Trader," London.	
Chas. T. Wilson Co., Inc.	191
OCTOBER 18. By "City of Lahore," Far East.	
H. A. Astlett & Co.	578
General Rubber Co.	112
Haldane Bierrie & Co., Inc.	400
L. Littlejohn & Co., Inc.	1,051
Meyer & Brown, Inc.	70
Poel & Kelly, Inc.	139
Poel & Kelly, Inc.	*264
OCTOBER 18. By "Lancastria," London.	
Poel & Kelly, Inc.	377
Chas. T. Wilson Co., Inc.	46
OCTOBER 18. By "Leeland," Antwerp.	
Bowring & Co.	424
OCTOBER 18. By "Minnetonka," London.	
H. A. Astlett & Co.	127
L. Littlejohn & Co., Inc.	80
Poel & Kelly, Inc.	130
OCTOBER 19. By "Franconia," London.	
Chas. T. Wilson Co., Inc.	53
OCTOBER 19. By "Malvernian," Far East.	
H. A. Astlett & Co.	470
Baird Rubber & Trading Co., Inc.	610
General Rubber Co.	4,315
Hood Rubber Co.	*14
L. Littlejohn & Co., Inc.	4,139
Meyer & Brown, Inc.	4,659
Poel & Kelly, Inc.	214
Raw Products Co.	790
Rogers Brown & Crocker Bros., Inc.	412
Chas. T. Wilson Co., Inc.	423
OCTOBER 20. By "Siberia Maru," Far East.	
Poel & Kelly, Inc.	†280
OCTOBER 20. By "Steel Traveller," Far East.	
H. A. Astlett & Co.	159
General Rubber Co.	7,835
L. Littlejohn & Co., Inc.	1,234
Meyer & Brown, Inc.	465
Poel & Kelly, Inc.	116
Rogers Brown & Crocker Bros., Inc.	344
Chas. T. Wilson Co., Inc.	120
OCTOBER 21. By "Pres. Polk," Far East.	
H. A. Astlett & Co.	642
Baird Rubber & Trading Co., Inc.	571
Baird Rubber & Trading Co., Inc.	*560
General Rubber Co.	2,760
Haldane Bierrie & Co., Inc.	150
L. Littlejohn & Co., Inc.	3,357
Meyer & Brown, Inc.	1,790
Poel & Kelly, Inc.	30
Raw Products Co.	735
Rogers Brown & Crocker Bros., Inc.	790
Chas. T. Wilson Co., Inc.	539
OCTOBER 22. By "Seydlitz," Hamburg.	
Raw Products Co.	30
OCTOBER 23. By "Vendam," Far East.	
General Rubber Co.	501
OCTOBER 23. By "West Harcuvar," Hamburg.	
H. Muehlstein & Co., Inc.	787
OCTOBER 24. By "Carmania," Liverpool.	
Poel & Kelly, Inc.	107
OCTOBER 25. By "Adriatic," Liverpool.	
Meyer & Brown, Inc.	29
H. Muehlstein & Co., Inc.	103
OCTOBER 25. By "American Merchant," Far East.	
General Rubber Co.	918
Meyer & Brown, Inc.	359
H. Muehlstein & Co., Inc.	718
Chas. T. Wilson Co., Inc.	589
OCTOBER 27. By "Montauk," Far East.	
Poel & Kelly, Inc.	†400
OCTOBER 25. By "Pres. Taft," Far East.	
H. A. Astlett & Co.	†150
General Rubber Co.	†200
OCTOBER 26. By "Japanese Prince," Far East.	
H. Muehlstein & Co., Inc.	1,111
Raw Products Co.	68
OCTOBER 26. By "Samaria," London.	
Chas. T. Wilson Co., Inc.	28
OCTOBER 27. By "City of Calcutta," Colombo.	
H. Muehlstein & Co., Inc.	80
Chas. T. Wilson Co., Inc.	112
OCTOBER 27. By "Elmbank," Far East.	
H. A. Astlett & Co.	56
General Rubber Co.	696
L. Littlejohn & Co., Inc.	782
Poel & Kelly, Inc.	91
Poel & Kelly, Inc.	*150
Raw Products Co.	30
OCTOBER 27. By "Samland," Antwerp.	
Bowring & Co.	167
H. Muehlstein & Co., Inc.	108
OCTOBER 28. By "Roussillon," Bordeaux.	
H. Muehlstein & Co., Inc.	1,198
OCTOBER 28. By "Veendyk," Far East.	
H. A. Astlett & Co.	758
Paul Bertuch & Co., Inc.	85
General Rubber Co.	1,468
L. Littlejohn & Co., Inc.	2,187
Meyer & Brown, Inc.	1,313
H. Muehlstein & Co., Inc.	105
Poel & Kelly, Inc.	1,296
Raw Products Co.	223
Chas. T. Wilson Co., Inc.	1,348
OCTOBER 29. By "Reliance," Hamburg.	
H. Muehlstein & Co., Inc.	108
OCTOBER 31. By "Rhesus," Far East.	
H. A. Astlett & Co.	641
Baird Rubber & Trading Co., Inc.	350
General Rubber Co.	1,965
Hood Rubber Co.	*43
L. Littlejohn & Co., Inc.	1,658
Meyer & Brown, Inc.	1,012
Meyer & Brown, Inc.	*42
H. Muehlstein & Co., Inc.	242
Poel & Kelly, Inc.	913
Raw Products Co.	680
Rogers Brown & Crocker Bros., Inc.	157
Chas. T. Wilson Co., Inc.	877
NOVEMBER 1. By "Deucalion," Far East.	
H. A. Astlett & Co.	1,770
Baird Rubber & Trading Co., Inc.	938
General Rubber Co.	6,841
Haldane Bierrie & Co., Inc.	450
L. Littlejohn & Co., Inc.	4,420
Meyer & Brown, Inc.	1,250
Poel & Kelly, Inc.	1,345
Poel & Kelly, Inc.	*660
Raw Products Co.	539
Rogers Brown & Crocker Bros., Inc.	300
Rogers Brown & Crocker Bros., Inc.	*50
Chas. T. Wilson Co., Inc.	1,446
NOVEMBER 1. By "Deutschland," Hamburg.	
H. Muehlstein & Co., Inc.	32
NOVEMBER 1. By "Minnewaska," London.	
Baird Rubber & Trading Co., Inc.	179
Chas. T. Wilson Co., Inc.	284
NOVEMBER 1. By "Tuscania," London.	
General Rubber Co.	1,539
Poel & Kelly, Inc.	25
NOVEMBER 1. By "Wiles Maru," Far East.	
H. A. Astlett & Co.	944
Baird Rubber & Trading Co., Inc.	375
Paul Bertuch & Co., Inc.	75
General Rubber Co.	1,414
L. Littlejohn & Co., Inc.	4,276
Meyer & Brown, Inc.	1,479
H. Muehlstein & Co., Inc.	598
Poel & Kelly, Inc.	211
Raw Products Co.	50
Rogers Brown & Crocker Bros., Inc.	1,194
Chas. T. Wilson Co., Inc.	412
NOVEMBER 3. By "Clan MacBride," Far East.	
H. A. Astlett & Co.	242
General Rubber Co.	13
Haldane Bierrie & Co., Inc.	450
L. Littlejohn & Co., Inc.	250
Meyer & Brown, Inc.	56
H. Muehlstein & Co., Inc.	132
Poel & Kelly, Inc.	69
NOVEMBER 5. By "Pres. Adams," Far East.	
H. A. Astlett & Co.	1,151
Baird Rubber & Trading Co., Inc.	1,412
Paul Bertuch & Co., Inc.	304
General Rubber Co.	1,575
Haldane Bierrie & Co., Inc.	496
L. Littlejohn & Co., Inc.	5,469
Meyer & Brown, Inc.	2,332
H. Muehlstein & Co., Inc.	205
Poel & Kelly, Inc.	338
Raw Products Co.	1,200
Rogers Brown & Crocker Bros., Inc.	810
Chas. T. Wilson Co., Inc.	318
NOVEMBER 6. By "City of Corinth," Far East.	
H. A. Astlett & Co.	1,088
Baird Rubber & Trading Co., Inc.	1,160
General Rubber Co.	4,678
Haldane Bierrie & Co., Inc.	750
L. Littlejohn & Co., Inc.	3,815
Meyer & Brown, Inc.	1,719
H. Muehlstein & Co., Inc.	610
Poel & Kelly, Inc.	715
Raw Products Co.	436
Rogers Brown & Crocker Bros., Inc.	130
Rogers Brown & Crocker Bros., Inc.	*50
Chas. T. Wilson Co., Inc.	670
NOVEMBER 6. By "Naperian," Europe.	
L. Littlejohn & Co., Inc.	373
NOVEMBER 8. By "Baltic," Liverpool.	
Baird Rubber & Trading Co., Inc.	71
L. Littlejohn & Co., Inc.	82
NOVEMBER 8. By "Transylvania," London.	
Chas. T. Wilson Co., Inc.	18
NOVEMBER 9. By "Cleveland," Hamburg.	
Raw Products Co.	20
NOVEMBER 9. By "Corby Castle," Far East.	
H. A. Astlett & Co.	1,283
Baird Rubber & Trading Co., Inc.	320
General Rubber Co.	8,589
Haldane Bierrie & Co., Inc.	50
L. Littlejohn & Co., Inc.	4,240
Meyer & Brown, Inc.	2,515
H. Muehlstein & Co., Inc.	70
Poel & Kelly, Inc.	798
Raw Products Co.	421
Rogers Brown & Crocker Bros., Inc.	1,474
Chas. T. Wilson Co., Inc.	313
NOVEMBER 9. By "East Indian," Far East.	
H. A. Astlett & Co.	460
General Rubber Co.	869
L. Littlejohn & Co., Inc.	120
Meyer & Brown, Inc.	250
Rogers Brown & Crocker Bros., Ind.	1,006
Chas. T. Wilson Co., Inc.	120
NOVEMBER 9. By "Minnekahda," London.	
L. Littlejohn & Co., Inc.	421
H. Muehlstein & Co., Inc.	50
Chas. T. Wilson Co., Inc.	950

* Arrived at Boston.
† Arrived at Los Angeles.

	Cases
NOVEMBER 10. By "American Shipper," London.	
Baird Rubber & Trading Co., Inc.	145
NOVEMBER 10. By "Chinese Prince," Far East.	
Baird Rubber & Trading Co., Inc.	1,337
General Rubber Co.	4,417
Haldane Bierrie & Co., Inc.	140
L. Littlejohn & Co., Inc.	5,511
Meyer & Brown, Inc.	2,361
H. Muehlstein & Co., Inc.	1,022
Poel & Kelly, Inc.	1,149
Raw Products Co.	451
Rogers Brown & Crocker Bros., Inc.	524
Rogers Brown & Crocker Bros., Inc.	*50
Chas. T. Wilson Co., Inc.	2,552
NOVEMBER 10. By "Robert Dollar."	
Baird Rubber & Trading Co., Inc.	†305
NOVEMBER 12. By "Antilochus," Far East.	
Baird Rubber & Trading Co., Inc.	1,515
General Rubber Co.	3,689
Haldane Bierrie & Co., Inc.	1,436
Hood Rubber Co.	*41
L. Littlejohn & Co., Inc.	2,848
Meyer & Brown, Inc.	1,535
H. Muehlstein & Co., Inc.	180
Poel & Kelly, Inc.	650
Raw Products Co.	138
Rogers Brown & Crocker Bros., Inc.	100
Chas. T. Wilson Co., Inc.	594
NOVEMBER 13. By "Rotterdam," Europe.	
Meyer & Brown, Inc.	108
NOVEMBER 15. By "Mahronda," Far East.	
General Rubber Co.	1,581
Meyer & Brown, Inc.	330
Chas. T. Wilson Co., Inc.	184

* Arrived at Boston.
† Arrived at Pacific Coast.

	Cases
NOVEMBER 15. By "Bintang," Far East.	
Baird Rubber & Trading Co., Inc.	219
General Rubber Co.	3,365
Meyer & Brown, Inc.	654
Meyer & Brown, Inc.	*67
H. Muehlstein & Co., Inc.	219
Rogers Brown & Crocker Bros., Inc.	101
NOVEMBER 15. By "Minnetonka," London.	
L. Littlejohn & Co., Inc.	581
Chas. T. Wilson Co., Inc.	214

Africans

	Cases
OCTOBER 16. By "Chicago," Bordeaux.	
L. Littlejohn & Co., Inc.	267
OCTOBER 18. By "Franconia," Liverpool.	
L. Littlejohn & Co., Inc.	91
OCTOBER 18. By "Zeeland," Antwerp.	
L. Littlejohn & Co., Inc.	1,033
OCTOBER 19. By "Collamer," Europe.	
L. Littlejohn & Co., Inc.	426
OCTOBER 21. By "Polycarp," Brazil.	
General Rubber Co.	2
OCTOBER 24. By "Glasgow Maru," Europe.	
L. Littlejohn & Co., Inc.	131
OCTOBER 24. By "Samaria," Liverpool.	
L. Littlejohn & Co., Inc.	399
OCTOBER 27. By "Samland," Antwerp.	
Hood Rubber Co.	pkgs. *1,075
OCTOBER 28. By "Roussillon," Bordeaux.	
L. Littlejohn & Co., Inc.	72
NOVEMBER 1. By "Scythia," Liverpool.	
L. Littlejohn & Co., Inc.	140
NOVEMBER 3. By "Half Moon," Europe.	
L. Littlejohn & Co., Inc.	1,591
NOVEMBER 3. By "Swinburne," Brazil.	
General Rubber Co.	5

	Cases
NOVEMBER 7. By "Etna Maru," Hamburg.	
L. Littlejohn & Co., Inc.	100
NOVEMBER 14. By "San Francisco Maru," Europe.	
L. Littlejohn & Co., Inc.	94
NOVEMBER 15. By "Aidan," Brazil.	
General Rubber Co.	3

Balata

	Bales
OCTOBER 13. By "Mayaro," South America.	
Middleton & Co., Ltd.	6
OCTOBER 25. By "Matura," South America.	
Middleton & Co., Ltd.	25
	Cases
NOVEMBER 2. By "Swinburne," Brazil.	
Paul Bertuch & Co., Inc.	50

Guayule

	Cases
OCTOBER 28. By "Panuco," Mexico.	
Continental Rubber Co., of New York.	1,620
NOVEMBER 8. By "Canto," Mexico.	
Continental Rubber Co., of New York.	1,120
NOVEMBER 9. By "Antilla," Mexico.	
Continental Rubber Co. of New York.	500
NOVEMBER 15. By "Monterey," Mexico.	
Continental Rubber Co. of New York.	571

Rubber Latex

	Gallons
OCTOBER 20. By "Steel Traveller," Far East.	
General Rubber Co.	65,038
OCTOBER 28. By "Veendyk," Far East.	
General Rubber Co.	35,387

Imports of Crude Rubber Into the United States by Customs Districts

	*September, 1926		Nine Months Ended *September, 1926	
	Pounds	Value	Pounds	Value
Massachusetts	1,652,312	$662,786	25,296,203	$16,085,587
Buffalo	5,070	2,104	46,269	23,834
St. Lawrence	.....	.....	1,880	611
New York	79,772,640	31,340,784	642,256,395	383,431,124
Philadelphia	296,373	90,311	905,229	93,536
Maryland	.....	.....	3,215,454	2,100,961
New Orleans	.....	.....	5,427	2,051
Los Angeles	717,332	247,981	11,810,001	7,787,047
San Francisco	405,649	153,811	1,990,139	1,027,382
Oregon	78,400	36,796	369,980	215,410
Washington	.....	.....	1,008,000	662,200
Minnesota	.....	.....	123,200	71,251
Michigan	.....	.....	52,511	23,394
Ohio	.....	.....	161,105	75,122
Colorado	202,884	90,457	932,784	755,026
Totals	83,130,100	$32,625,032	687,576,577	$412,354,536

*Including Latex Dry Rubber Content.

Ceylon Rubber Exports from Jan. 1 to Sept. 8, 1926

	Tons
To United Kingdom	11,593.94
Continent	2,035.08
Australia	459.11
America	23,107.60
Egypt	4.11
Africa	40.29
India	6.18
China	2.46
Japan	96.01
Total	37,344.78

CEYLON ANNUAL EXPORTS, 1920-1925

	Tons
For the same period last year	28,237.10
For the year 1925	43,697.19
1924	37,151.11
1923	37,111.88
1922	47,260.00
1921	40,210.31
1920	38,971.59

Plantation Rubber Exports from Malaya

January 1 to September 30, 1926

	From Singapore Tons	From Penang Tons	From Malacca Tons
To United Kingdom	7,873.90	9,155.28	8,253.76
British Possessions	1,278.84	164.78	155.54
Continent of Europe	9,827.42	1,743.45	2,531.64
United States	108,259.76	22,380.63	10,472.24
Japan	8,563.62	1,478.99	1,527.87
Other countries	93.60	9.00	.....
Totals	137,997.14	34,932.13	23,041.05

British Malaya

Rubber Exports

An official cablegram from Singapore to the Malay States Information Agency, 88 Cannon street, London, E. C. 4, England, states that the amount of rubber exported from British Malaya in the month of October last totaled 39,367 tons. The amount of rubber imported was 15,203 tons, of which 12,439 tons were declared as wet rubber. The following are comparative statistics:

	1925		1926	
	Gross Exports Tons	Foreign Imports Tons	Gross Exports Tons	Foreign Imports Tons
January	19,183	10,132	30,452	10,237
February	21,622	10,071	30,440	8,306
March	26,836	13,399	35,012	14,800
April	22,414	11,750	23,727	10,565
May	26,667	12,979	31,231	10,604
June	27,894	14,706	30,624	11,764
July	24,809	16,192	28,824	15,280
August	27,753	12,025	34,625	13,595
September	29,425	12,913	35,913	13,972
October	24,711	14,986	39,367	15,203
Totals	255,314	129,153	320,215	124,326

Note—The above figures represent the totals compiled from declarations received up to the last day of the month for exports from and imports to all ports of British Malaya, and not necessarily the actual quantity shipped or landed during that month.

Distribution

The following is a comparative return of distribution of shipments during the months of September and October, 1926.

	September, 1926 Tons	October, 1926 Tons
United Kingdom	7,891	7,732
United States	22,475	24,983
Continent of Europe	2,071	2,789
British Possessions	962	741
Japan	2,500	3,115
Other foreign countries	14	7
Totals	35,913	39,367

Dealers' Stocks of Rubber

A telegram from Singapore to the Malay States Information Agency, 88 Cannon street, London, E. C. 4, England, states that dealers' stocks of rubber on October 31, 1926, were in Singapore, 22,603 tons, and in Penang 4,011 tons.

AFRICAN RUBBER PRODUCTION

The rise in the price of rubber stimulated production on the Gold Coast. For several years past collecting rubber has not been a profitable undertaking in the Colony but in 1925 shipments increased by 825,650 pounds in quantity and £25,029 in value. Total exports of rubber from Nyasaland showed a slight drop from 78 tons in 1924 to 71 tons in 1925.

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